

CHAPTER 6
Production Divisions; Work Center Supervisor; Maintenance Training; and
Training, Special Process Certification and Licensing

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CHAPTER 6
Production Divisions; Work Center Supervisor; Maintenance Training; and
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6.1 Production Divisions

6.1.1 O-Level Maintenance; Aircraft Division

a. The Aircraft Division performs applicable O-level maintenance functions relative to assigned branches, for example, Airframes, Power Plants, and ALSS as directed by the MO and in conjunction with other production divisions.

b. The Aircraft Division shall supervise, coordinate, and complete scheduled maintenance and inspections using inspection crew supervisors and other permanently assigned personnel as designated by the MO. Additional personnel required to perform scheduled maintenance and inspections will be made available, as required, from other production divisions. In addition, the Aircraft Division shall:

- (1) Advise Maintenance Control continuously on the status of work in progress.
- (2) Ensure cleanliness of hangar and assigned spaces.
- (3) Nominate personnel for assignment as CDIs.
- (4) Initiate requests for material required for doing assigned tasks.
- (5) Maintain, and assume custody and accountability of, assigned tools and SE.
- (6) Interpret directives.
- (7) Recommend changes in techniques to promote ground and flight safety and material readiness of aircraft.
- (8) Carry out an active FOD Prevention Program.
- (9) Initiate requests to Maintenance Control for unscheduled maintenance.
- (10) Provide troubleshooters and aircrew members, as required, and exercise technical supervision over such personnel.
- (11) Expedite the accomplishment of assigned work through the continuous evaluation of methods and procedures, and incorporate new techniques as appropriate.
- (12) Carry out an active Corrosion Prevention and Control Program.

6.1.1.1 Power Plants Branch

6.1.1.1.1 Due to RCM Program philosophy, it is not usually necessary to overhaul gas turbine engines when they reach a predetermined maximum operating time.

6.1.1.1.1.1 Threshold sampling is an investigative procedure conducted on the high value, long lead time, and other critical parts for which little or no failure history is available. When the components/parts in this category suddenly fail, an unplanned, unbudgeted accelerated program must be implemented to correct the deficiency. Threshold sampling is designed to bring visibility to the impending problems and thus eliminate

them before the fact. Sampling is usually done in conjunction with engine rework and this process is defined as opportunity sampling. When this procedure cannot be done, forced removal is required for the purpose of analyzing hardware condition at engine hour milestones. The ISSC publishes a list of threshold sampling candidates, quantities, and milestones for each engine. Milestones are updated as they are successfully passed.

6.1.1.1.1.2 Engines and engine accessories and components are removed and forwarded to the IMA/FRC only when they require repair of failures or malfunctions, or for one of the following reasons:

- a. Fleet removals as a result of engine scheduled maintenance requirements.
- b. PMA requested removals as a result of engine performance deterioration.

NOTE: PMA requested engine removals and accessory and component teardown inspections must be coordinated with the cognizant ACC/TYCOM.

- c. PMA requested or fleet removals as a result of time compliance requirements of PPCs.
- d. PMA requested or fleet removals as a result of threshold sampling when opportunity sampling will not provide the required data.

6.1.1.1.1.3 Since all gas turbine engines are required to have an AESR or CM ALS AESR, it is important that any activity involved in the operation, maintenance, or transportation of gas turbine engines ensure the AESR or CM ALS AESR is maintained in proper order.

6.1.1.1.1.4 Aircraft engine/gearbox oil consumption awareness must be stressed to all personnel taking oil samples, servicing, and performing maintenance on each system. Discrepancies shall be documented on a MAF or WO and the Maintenance/Production Control Supervisor notified.

6.1.1.1.2 Screening Procedures for Non-RFI Engines. Engines that have been determined to require maintenance actions, for example, repairs, inspections, and time compliance changes, that are beyond the capability of O-level maintenance will be removed and delivered to the nearest supporting IMA/FRC via the supporting supply activity. The CM ALS AESR is transferred using CM. The AESR will accompany the engine along with the turn-in document. A copy of all MAFs/WOs generated as a result of the maintenance action will be forwarded to the ISSC for CMIS Component Tracking System for Engines.

6.1.1.1.2.1 All aircraft activities having custody of operating gas turbine engines requiring removal for work which is beyond their scope will have the engine delivered to the supporting IMA/FRC, via Supply, marked for examination and decision as to repair required. When a supporting first-, second-, or third-degree activity is unavailable locally, the engine is preserved and turned in to the supporting supply activity for shipment to the nearest authorized repair activity designated for the engine type being shipped.

6.1.1.1.2.2 When tracked components are moved between activities for any reason, applicable reports shall accompany the component.

6.1.1.1.2.3 In cases of engine failure(s) when an EI is required, shipment of the engine(s) to the D-level repair facility will be expedited. Engine(s) or accessories are not preserved if such action would destroy or conceal the evidence required by such inspection. In cases of this nature, proper AESR or CM ALS AESR entries must be made to indicate the reason for not preserving the engine. The procedures in [Chapter 10](#), paragraph 10.9, must be used when requesting an EI.

6.1.1.1.2.4 Accurate logbook records or CM ALS AESR must be maintained. The required number of SRC cards, ASRs, EHRs, and MSRs must be included with each engine AESR or CM ALS AESR. If an engine is

removed, an entry must be made in the engine AESR or CM ALS AESR stating the reasons for removal. HAZMAT, publications, substandard workmanship, and improper QA procedures that require prompt attention and corrective action shall be reported per [Chapter 10](#), paragraph 10.9.

6.1.1.1.2.5 All engines or modules forwarded to other activities will have a full inventory of repairable and nonrepairable components and accessories and appropriate reports. Non-RFI components and accessories that are installed as a result of cannibalization will be clearly tagged and an entry made.

6.1.1.1.2.6 O-level activities shall provide to the supporting IMA/FRC any PPB or PPC parts or kits if kits were previously furnished but not incorporated.

6.1.1.1.3 Engine Inspection Procedures and Responsibilities

6.1.1.1.3.1 Engine inspections shall be accomplished using applicable MRCs upon expiration of the established interval.

6.1.1.1.3.2 Engine inspections may be performed independent of, or concurrent with, any airframe inspection. Unless otherwise directed by the PMICs, a plus or minus 10 percent deviation of the engine inspection interval is allowed for scheduling purposes.

6.1.1.2 Airframes Branch

The Airframes Work Center has responsibilities associated with the Hydraulic Contamination Control Program ([Chapter 10](#), paragraph 10.5), Tire and Wheel Maintenance Safety Program ([Chapter 10](#), paragraph 10.6), Corrosion Prevention and Control Program ([Chapter 10](#), paragraph 10.13), and other programs (as required).

6.1.1.3 Aviation Life Support Systems (ALSS)

6.1.1.3.1 The maintenance of ALSS is an integral part of maintaining aircraft. It is essential that the procedures and the assigned responsibilities for these systems be clearly understood and complied with to ensure maximum safety/survivability as well as aircraft readiness is achieved. ALSS is defined as those items of equipment and clothing needed to allow aircrew members and aircraft passengers to:

- a. Function within all parameters of the flight environment.
- b. Safely egress from disabled aircraft and descend/ascend to the surface.
- c. Survive on land or water and interface with rescue forces.

6.1.1.3.2 ALSS include such items as escape systems, environmental systems, fire extinguishing systems, aircrew clothing, survival kits, personnel parachutes and the associated hardware, life rafts and life preservers, anti-exposure suits, survival radios and other emergency signaling equipment, flight helmets, oxygen equipment, anti-G suits and associated hardware, and other miscellaneous survival and life support items.

6.1.1.3.2.1 Maintenance Control will schedule and control the entire maintenance effort of the egress and environmental systems and the Aircrew Personal/Protective/Survival Equipment Work Center for scheduled and unscheduled personal equipment maintenance, as well as any nonaeronautical work.

6.1.1.3.2.2 ALSS Pools. Rotatable pools of ALSS spare assemblies (parachutes, life rafts, SSKs, life preservers, survival radios, and miniature regulators) shall be established by IMAs ashore. The spare ALSS assemblies are owned by the station/MALS Aviation Supply Officer; inventoried, maintained, and stored by

the local IMA/FRC. This material will be maintained in a rotatable ALSS pool located in the IMA 800 Division. O-level activities are not authorized to requisition or stock ALSS assemblies or parts beyond those to outfit 100 percent of assigned aircraft and aircrew.

6.1.1.3.2.2.1 When the deployment site does not have an ALSS pool, the supporting shore-based IMA/FRC is responsible for providing RFI assemblies equal to 10 percent of those required for full outfitting of the deploying squadron or detachment to the deployed site.

6.1.1.3.2.2.2 Deployed shipboard IMAs will be responsible for providing all repair parts and components required to support the embarked squadrons' ALSS equipment.

6.1.1.3.2.2.3 Upon completion of deployment, the shipboard IMA is responsible for returning the same number of RFI assemblies originally provided by the supporting shore-based IMA/FRC. When the deployment site does not have an established IMA, the deployed site Supply Officer is responsible for returning all unused assemblies and adequate documentation on the used material to guarantee proper stock replacement, carcass tracking, and charges.

6.1.1.3.2.3 Personal survival equipment, such as helmets, survival vests, gloves, flight suits, or items of squadron equipment which are not normally inducted into the IMA/FRC for maintenance, are not to be included in ALSS pools.

6.1.1.3.3 Safety. ALSS, by virtue of their unique function and responsibility, present inherently hazardous situations when approached improperly. Included in the overall concept of division and work center safety programs are several areas peculiar to ALSS. Emphasis must be placed on these areas at all levels of command, with the support from each person that may come in contact with them. Division chief petty officers or NCOICs, leading petty officers or NCOs, and work center supervisors, must recognize the responsibility incumbent upon the safety petty officers or NCOs and assist when required in correcting these hazardous situations. Safety petty officers or NCOs must be guided by a strict sense of responsibility and remain alert to any possibility of an unsafe situation before it develops. Hazardous areas peculiar to ALSS include but are not limited to the following:

- a. LOX handling and servicing.
- b. LOX converter systems.
- c. Gaseous oxygen handling and servicing.
- d. Gaseous oxygen and nitrogen systems.
- e. Test stands and SE using low and high pressure gases.
- f. Cartridges and CADs, such as installed and uninstalled parachute automatic actuators, ballistic spreading guns, ejection seats and components, canopy systems, and components containing explosive devices.

6.1.1.3.4 Aviators Breathing Oxygen Surveillance Program. Refer to [Chapter 10](#), paragraph 10.4.

6.1.1.3.5 Explosive Devices Handling

6.1.1.3.5.1 The description, preparation for use, and handling instructions for rocket catapults and rocket motors for ALSS are in NAVAIR 11-100-1.1-CD.

6.1.1.3.5.2 Information concerning cartridges and CADs for aircraft and associated equipment is in NAVAIR 11-100-1.1-CD.

6.1.1.3.5.3 Personnel in the ALSS Branch will be qualified per the R} Explosives Handling Personnel Qualification and Certification Program established in OPNAVINST 8023.24/MCO 8023.3.

6.1.1.3.5.4 A NAR is not an authorized medium for directing or authorizing the removal/replacement of aircraft or ALSS installed cartridges, pyrotechnics, CADs, or PADs. The TD system was established for that purpose. If, within 3 days of receipt of a NAR (affecting the equipment described above), a TD has not been received, the reporting custodian will request assistance from the ACC/TYCOM who in turn will request status from COMNAVAIRSYSCOM.

6.1.1.3.6 Cannibalization of egress system components must be held to an absolute minimum. Proper functioning of egress systems is critical and the interchanging of egress system components increases the possibility of maintenance error and exposes maintenance personnel to unnecessary, unscheduled maintenance on hazardous material.

6.1.1.3.6.1 Personnel parachutes and survival kits require stringent management to ensure aircraft/systems components/special inspection compatibility. Returning cannibalized components to the original aircraft will increase aircraft readiness, decrease the possibility of logbook record error, and ensure aircraft/system/special inspection compatibility is maintained. Returning egress system components to the original aircraft/egress system must be documented on a MAF or WO.

6.1.1.3.6.2 Egress system related cartridges/CADs/PADs will not be cannibalized without prior cognizant Wing (ashore) or CVW (afloat) approval.

6.1.1.3.6.3 Some egress systems require special adjustments when ejection seats are installed in a different aircraft and damage may result from excessive handling or repeated removal and installation. Ejection seat rework is tied to aircraft rework, therefore, cannibalization of seats could cause a seat to serve more than one tour without being reworked. For these reasons, ejection seats will not be cannibalized without prior approval by the cognizant Wing (ashore) or CVW (afloat).

6.1.1.3.7 Documentation. Standardized aviation 3M documentation throughout the Navy/Marine Corps will increase the accuracy of maintenance data reporting; thereby, producing a higher percentage of reliable maintenance data. The importance of accurate documentation cannot be overemphasized.

NOTES: 1. OMA NALCOMIS Optimized squadrons shall have one AZ, one PR, and one AME (if applicable) complete the ALSS Configuration Management course (D/E-555-0056).

2. OMA NALCOMIS Optimized squadrons that operate from a detachment based concept for 90 days or longer periods of time shall have one AZ and one PR complete the ALSS Configuration Management course (D/E-555-0056) prior to detachment.

6.1.1.3.7.1 Provisions have been made to identify individual aircrew member's equipment through the complete special inspection.

6.1.1.3.7.2 An example of proper documentation for conducting a special inspection on personal survival equipment follows:

Block A22. Enter the WUC for a special inspection, for example, 030000G

Block A52. Enter the aircrew member identification number, for example, GF9341.

Block A32. Enter Transaction Code 11, for on equipment work.

Block A35. Enter Action Taken Code 0.

6.1.1.3.7.3 An example of proper documentation for a discrepancy discovered during a special inspection of aircrew member's personal equipment follows:

Block A22. Enter the WUC for the survival vest, for example, 96A32.

Block A32. Enter Transaction Code 12 if failed parts are documented.

Block A52. Enter the aircrew member's identification number, for example, GF9341.

Block A58. Enter the discrepancy discovered during a special inspection, Code L.

6.1.1.3.8 Tool control within the ALSS Branch is unique. In addition to policy set forth in [Chapter 10](#), paragraph 10.12.1 all tools must be accounted for after the repack and inspection of each item, for example, parachutes and flotation equipment. These items cannot be functionally checked prior to use.

6.1.1.3.9 Maintenance will be conducted using the applicable technical manuals.

6.1.1.3.10 A qualified PR is defined as a graduate of the Navy PR "A" School.

6.1.1.3.11 A qualified AME is defined as a graduate of the Navy AME "A" School and CENNAVAVNTECHTRAU for specific T/M/S egress systems.

6.1.1.3.12 Certified PRs/AMEs are defined as personnel who have been qualified under the Explosive Handling Personnel Qualification and Certification Program.

6.1.1.3.13 Activities having no or only one PR assigned shall designate in writing a properly cross trained QAR or CDQAR to inspect work performed on ALSS equipment maintained by Work Center 13A. This does not include parachute or life raft/life preserver packing/repacking or other I-level maintenance functions on ALSS equipment. Cross trained QARs/CDQARs shall use NAVAIR 13-1-6 series manuals for technical guidance. Personnel performing ALSS equipment maintenance and QARs/CDQARs inspecting work performed shall be ordnance certified per R} OPNAVINST 8023.24/MCO 8023.3.

6.1.1.3.14 Activities consistently operating under the detachment/homeguard concept with no PR assigned to the detachment shall designate one additional cross trained person to perform O-level maintenance on assigned ALSS equipment. Training shall be provided by a senior (E-5 or above) PR assigned to the parent squadron or the supporting IMA/FRC and shall be limited in scope and content. The parent MO shall sign a designation letter specifically identifying the T/M/S aircraft or equipment involved and specific functions authorized.

NOTE: Use of personnel not qualified, certified to perform maintenance on egress systems is NOT AUTHORIZED.

6.1.1.3.15 O-level activities supported by contract maintenance shall use only qualified, certified civilian personnel to perform O-level maintenance on ALSS/egress system maintenance.

6.1.1.3.15.1 For Work Center 13A, only personnel who are graduates of Navy PR or equivalent Air Force or Army MOS course shall be allowed to perform ALSS system maintenance.

6.1.1.3.15.2 For Work Center 13B, only personnel who are graduates of Navy AME "A" School and CENNAVAVNTECHTRAU for specific T/M/S or T/M/S factory equivalent training course shall be allowed to perform egress system maintenance.

6.1.1.3.15.3 In addition to paragraphs 6.1.1.3.15.1 and 6.1.1.3.15.2 above, for contract maintenance personnel to be designated as a QA Inspector on ALSS/egress equipment, a documented working history with ALSS/egress equipment is required.

6.1.1.3.16 Inspection Requirements

6.1.1.3.16.1 Acceptance/post D-level inspections are performed at the time a reporting custodian accepts a newly assigned aircraft or aircrew personnel mounted equipment, from any source, including return of an aircraft from off-site D-level facility. It includes an inventory of all equipment listed in the AIR, verification of CADs and PADs, and a configuration verification. For acceptance inspection purposes, verification of CADs, PADs, and configuration is accomplished by visual external inspection and record examination only. Disassembly beyond the daily inspection requirements of applicable PMS publications is not required. Activities may elect to increase the depth of inspection if equipment condition, visual external inspection, or record examination indicates such action is warranted. On acceptance of an aircraft R} and ALSS equipment, review the VFS CADPAD, TRACE CADPAD and TRACE Life Support Modules data for accuracy.

6.1.1.3.16.2 Transfer/pre-D-level inspections are performed at the time a reporting custodian transfers an aircraft or aircrew personnel mounted equipment, including delivery to an off-site facility. It includes an inventory of all equipment listed in the AIR, verification of CADs and PADs, and a configuration verification. For transfer inspection purposes, verification of CADs, PADs, and configuration is accomplished by visual external inspection and record examination only. Disassembly beyond the daily inspection requirements of applicable PMS publications is not required. Verify flight hours are correct on the Monthly Flight Summary (OPNAV 4790/21A) or CM ALS Flight Summary by checking the Period and Since New blocks. In addition, verify operating hours on the Equipment Operating Record (OPNAV 4790/31A) or CM ALS Equipment Operating Record by checking the ACCUM block. Activities may elect to increase the depth of inspection if equipment condition, visual external inspection, or record examination indicates such action is warranted. On transfer of an aircraft R} and ALSS equipment, electronically transfer custody of aircraft and ALSS equipment to another command using the VFS CADPAD, TRACE CADPAD and TRACE LIFE SUPPORT MODULE.

6.1.1.3.16.3 Inspections will be conducted as specified by the applicable technical manuals.

6.1.1.3.17 Records and Cards

6.1.1.3.17.1 The following records are designed to document ALSS components:

a. The Parachute Record (OPNAV 4790/101) is designed to provide the current configuration and inspection record of a parachute assembly and its components. The record is a single copy, single-sided R} VFS CADPAD, TRACE LIFE SUPPORT MODULE generated form. The record is designed to be filed in the aircraft logbook or the ejection seat AESR where the parachute system is installed.

b. The Seat Survival Kit Record (OPNAV 4790/137) is designed to provide configuration and inspection information for an SSK and its components. The record is a single copy, single-sided R} VFS CADPAD, TRACE LIFE SUPPORT MODULE generated form. The record is designed to be filed in the aircraft logbook or the ejection seat AESR in which the SSK is installed.

c. The Aircrew Systems Record (OPNAV 4790/138) is designed to provide a continuous configuration and inspection record of ALSS components, kits, and assemblies. This record is a single copy, single-sided R} VFS CADPAD, TRACE LIFE SUPPORT MODULE generated form. Each item of ALSS requiring inspection at the I-level of maintenance shall have a separate Aircrew Systems Record. The record shall be filed in the logbook of the aircraft in which the ALSS component, kit, or assembly is installed. For personnel mounted equipment or other equipment which is not aircraft mounted, the record will be maintained as directed by the MO. For amplifying instructions for this record refer to [Chapter 5](#) and NAVAIR 13-1-6 series manuals.

d. The Aircrew Personal Equipment Record (OPNAV 4790/159) shall be initiated by the cognizant O-level activity upon the initial issue of personal equipment to the aircrew member. The record **R** is a single copy, single sided VFS CADPAD, TRACE LIFE SUPPORT MODULE generated form and provides the current configuration of all personal survival equipment issued to the aircrew member. Only items of ALSS requiring inspection at the O-level shall be documented on this record. The record shall be retained until new equipment can no longer be documented in allotted spaces. As an item is removed from service it will be deleted from the record by drawing a single red line through all information pertaining to that item. Information pertaining to the removed item's replacement will be annotated in the next available line below. When the card is filled, a new record shall be initiated and all current data transcribed to the new record. Upon verification of data, the old record may be destroyed.

e. When any ALSS equipment has been involved in an aircraft mishap, the records shall be forwarded per OPNAVINST 3750.6 and NAVAIR 13-1-6 series manuals.

6.1.1.3.17.2 Record Retention. Each aircrew member shall have a separate file containing the Aircrew Personal Equipment Record (OPNAV 4790/159) and separate Aircrew Systems Records (OPNAV 4790/138) as needed. The aircrew flight equipment file shall be constructed of a suitable 9 x 12 folder. The Aircrew Personal Equipment Record (OPNAV 4790/159) will be firmly attached on the right side of the folder and all applicable Aircrew Systems Records (OPNAV 4790/138) will be placed on the left. All maintenance actions performed on an aircrew member's equipment shall be documented on a MAF/WO. After normal processing of the VIDS/MAF, Copy 3 will be placed in the aircrew member's flight equipment file beneath the Aircrew Personal Equipment Record (OPNAV 4790/159) until Copy 1 is received from the data services facility. Copy 3 can then be discarded. Copy 1 will be placed beneath the Aircrew Personal Equipment Record (OPNAV 4790/159) and retained for a minimum of 6 months.

NOTE: All aircrew flight equipment records and files shall be maintained as directed by the MO.

6.1.1.3.17.2.1 When an item of ALSS is due for inspection or maintenance, Maintenance Control shall forward all appropriate records with the MAF or WO to the Aircrew Personal/Protective/Survival Equipment Work Center.

6.1.1.3.17.2.2 For record entry requirements for ALSS records refer to [Chapter 5](#) and NAVAIR 13-1-6 series manuals.

6.1.1.3.18 Local Modification. Except as indicated in [Chapter 3](#), no modification of ALSS is permitted.

6.1.1.3.19 Training. Follow-on formal training is available to the AME and PR through the appropriate C school. Training is also available through CENNAVAVNTECHTRA and FREST.

6.1.1.3.20 ISSCs. ISEL responsibilities for each component in an ALSS is assigned to an ISSC. ISSCs are equipped and staffed to offer technical assistance beyond the depth normally available at O-level or I-level maintenance and to provide ISEL data and services. ISSC members may be located at FRCs, NAVAIR-WARCENWPNDIV, Naval Air Engineering Station, Naval Air Warfare Center Training Systems Division, Naval Weapons Station, Naval Weapons Center, or at other COMNAVAIRSYSCOM team locations.

6.1.1.4 Periodic Maintenance Branch

6.1.1.4.1 The Periodic Maintenance Branch has an important role in the conduct of the PMS. PMS formally ensures aeronautical equipment is maintained throughout its life cycle by controlling degradation resulting from time, operational cycles, use, or climatic exposure. Many separate but interrelated functions and tasks are combined to make up the maintenance equipment workload in support of aircraft and aeronautical equipment. The limited time available for performing maintenance does not allow the tasks to be considered, planned, and performed on an individual basis. They must be combined and sequenced properly if the

overall job is to be accomplished efficiently. The best possible use of time, manpower, materials, and funds is mandatory if the maximum potential equipment availability and use is to be realized. The PMS, properly conducted, ensures aeronautical equipment receives the necessary servicing, preventive maintenance, and inspections required. Upon induction of an aircraft into inspection, the inspection supervisor will perform all Maintenance Control functions except cannibalization actions, which must be directed by Maintenance Control, until completion of the inspection. All MAFs will be displayed in the same manner as the Maintenance Control board. The inspection supervisor must notify Maintenance Control of any change that affects SCIR. When the inspection is completed, all outstanding documents shall be returned to Maintenance Control and replaced under the appropriate column of the Maintenance Control board. If operating NALCOMIS OMA, use applicable NALCOMIS procedures and reports in lieu of VIDS.

6.1.1.4.2 Successful operation of the phased maintenance program depends primarily on adequate preinduction preparation, effective use of MRCs and the SCCs, and upon the degree of control exercised by the supervisor. Resequencing of inspection tasks cannot be done without consideration of the affect on the overall inspection effort. Control of the inspection is the responsibility of the inspection supervisor. Scheduling and coordinating allows all requirements to be sequenced effectively to allow performance with minimum disruption of the scheduled inspection. The supervisor will indicate issued MRCs on the SCC. To ensure positive control of inspection progress, individual inspection crew members normally should not be issued MRCs at any one time with task totals in excess of 2 hours. Return of the accomplished MRCs to the supervisor shall also be noted. An explanatory note shall be entered on the SCC for each MRC that could not be completed. It is mandatory that all maintenance actions be cleared through the inspection supervisor. The discrepancy record for items discovered during the inspection must be prepared in cooperation with the supervisor to ensure the supervisor is aware of possible changes that may be required in the inspection sequence.

6.1.1.4.3 Personnel Manning Options. Local commands may select the manning arrangement addressed below which best fits local circumstances. Each has definite advantages and disadvantages which must be considered. For example, permanent crews may require productive work between inspections depending on inspection cycle length. Temporary crews lack the team continuity and efficiency associated with permanent crews. It is advantageous to establish a permanent crew when the inspection cycle length and the number of aircraft cause the inspection workload to be fairly constant. The work content of the scheduled inspections should be examined to determine the numbers and ratings of personnel required for the crew. For instances where only a small amount of work is programmed for a specific rating, consider drawing the required rating from the applicable shop on a temporary basis. If the anticipated length of time between inspections does not justify establishment of a permanent crew, a temporary crew concept should be used. Under this concept a permanent inspection supervisor is assigned. As each inspection becomes due the supervisor assembles the necessary ratings from the appropriate shops for the duration of the inspection. Upon completion of the inspection they return to their permanently assigned work center. The main tools used to accomplish effective inspections are the PMS publications.

NOTE: Information concerning the various types of aircraft inspections performed by the Line Division or Periodic Maintenance Branch is listed in [Chapter 5](#).

6.1.2 Organizational Maintenance; Avionics/Armament Division

a. The Avionics/Armament Division shall:

(1) Assign personnel required to accomplish scheduled periodic/phased maintenance and inspections of assigned aeronautical equipment.

(2) As directed by the MO and in conjunction with the other production divisions, perform those applicable O-level maintenance functions outlined in [Chapter 3](#) in the areas relative to assigned branches.

- (3) Advise Maintenance Control continuously on the status of work in progress.
- (4) Ensure cleanliness of assigned spaces.
- (5) Maintain, and assume custody and accountability of, assigned tools and SE.
- (6) Initiate requests for material required for the accomplishment of assigned tasks.
- (7) Nominate qualified individuals for designation as CDIs.
- (8) Interpret directives.
- (9) Recommend changes in methods and techniques to promote maximum ground and flight safety and material readiness of aeronautical equipment.
- (10) Initiate requests to Maintenance Control for unscheduled maintenance.
- (11) Provide troubleshooters and aircrew members, as required, and exercise technical supervision over such personnel.
- (12) Expedite the accomplishment of assigned work by continuous evaluation of methods and procedures and incorporate new techniques as appropriate.
- (13) Carry out an effective FOD Prevention Program.
- (14) Carry out an effective Corrosion Prevention and Control Program.

b. In HM squadrons, the Aircraft Maintenance Department Mission Configuration Branch will receive AMCM equipment from the AMCM Systems Maintenance Department and install that equipment into aircraft as directed by aircraft Maintenance Control. Upon removal of AMCM equipment from aircraft, the Mission Configuration Branch will return AMCM equipment to the AMCM Maintenance Systems Department. The Mission Configuration Branch will perform scheduled maintenance and unscheduled maintenance on installed AMCM equipment and equipment in its custody.

NOTE: All maintenance, supply handling, and accounting of communications security equipment will be performed using the procedures in the CMS-1.

6.1.2.1 Aircraft Compass Calibration

6.1.2.1.1 All naval aircraft carry at least two compass systems on board. Usually, one is designated as a standby or backup system. Aircraft compass systems are made by various manufacturers and have several modes of operation; however, all remote indicating systems employ a flux valve with an attached mechanical compensator containing two bar magnets and an interconnecting gear network or a remotely located electronic compensator. The compensator is used to calibrate the compass system by compensating for the deviation caused by the metal airframe and nonlinearities of the flux valve. The information provided by the flux valve is used for various navigation and weapons delivery systems throughout the aircraft and must provide reliable data. Provisions here apply to all activities operating or maintaining naval aircraft.

6.1.2.1.2 A compass system is defined as any system or instrument which uses the earth's magnetic field as its primary source of heading information, whether employed as a navigational aid, computer input for weapons delivery systems, or magnetic variation computations in inertial navigation.

6.1.2.1.3 Compass systems within naval aircraft shall be calibrated:

a. Upon initial installation following the change of a major compass system component which affects the accuracy of the compass system.

b. Following any flight in which it is determined that significant errors exist in any of the aircraft compass systems.

6.1.2.1.4 Compass calibration, as a result of the above paragraphs, will be documented on the same MAF or WO reporting correction of the discrepancy. These actions are defined in [Chapter 15](#).

6.1.2.1.5 Compass systems shall be calibrated on a scheduled basis per T/M/S MRC cards. Aircraft without MRC cards will be calibrated using the following guidelines:

a. At least once each 12 months from last calibration.

b. Within 90 days prior to a scheduled extended deployment of 60 days or more.

NOTE: These compass swing requirements do not apply to aircraft equipped with dual, independent inertial navigation systems. Requests for deviation to the above calibration interval will be directed to the respective Type Wing CGMAW with an information copy to the ACC/TYCOM.

6.1.2.1.6 Responsibilities

6.1.2.1.6.1 COMNAVAIRSYSCOM shall:

a. Plan and budget all resources required for execution of the aircraft compass calibration requirements and procedures.

b. Resolve any conflicts between this document and existing MIMs specifications/related engineering directives.

6.1.2.1.6.2 ACCs/TYCOMs shall:

a. Ensure compass calibration requirements are maintained within all subordinate units.

b. Maintain compass calibration surveillance and correct local deficiencies when noted.

c. Advise COMNAVAIRSYSCOM of compass calibration deficiencies and required improvements.

6.1.2.1.6.3 COMFAIR, Type Wing Commanders, and CGMAWs shall coordinate and monitor established compass calibration requirements and procedures and assess their adequacy during command and deployment related inspections.

6.1.2.1.6.4 O-level activities shall:

a. Comply with aircraft compass calibration requirements and procedures in this instruction, MIL-STD-765A, and applicable MIMs.

b. Ensure adequate training of involved personnel in matters pertaining to aircraft compass calibration.

c. Ensure supervisory and QA personnel are thoroughly familiar with MIL-STD-765A and the criteria set forth therein.

6.1.2.1.7 Document compass calibration directed by a special MRC as a special inspection. Compass calibration not directed by a special MRC will be documented as a conditional inspection.

6.1.2.1.8 Appropriate compass correction cards shall be displayed in aircraft requiring them and shall be located near compass indicators with the date of system calibration. In addition, a copy of each current compass correction card shall be maintained in the manila envelope located inside the back cover of the Aircraft Logbook (Binder) (OPNAV 4790/19). Activities with NTCSS Optimized OMA NALCOMIS will enter the compass calibration readings in the Miscellaneous History record of the CM ALS.

NOTE: Refer to Chapter 5 for requirements on aircraft logbook entries.

6.1.2.1.8.1 Compass Correction Card AN5823 is the military standard listed in MIL-STD 765A. The following will help to clarify the information required for compass correction cards:

a. On the front of the Compass Correction Card, the compass block identifies the system being calibrated, the swung block is the date the system was calibrated/verified, and the by block identifies the calibration method used.

b. On the back of the Compass Correction Card, print the name of the CDI who witnessed the calibration or the flight crewman who performed the in-flight verification, the geographical location where the calibration or in-flight verification was performed, and the BUNO of the aircraft that was calibrated/verified.

6.1.2.1.8.2 Aircraft compass systems that are calibrated will post the current Compass Correction Card (original) near each compass indicator. A copy of the current Compass Correction Card will be placed in the manila envelope in the back of the aircraft logbook.

6.1.2.1.8.3 Aircraft compass systems that are verified will post a new verification Compass Correction Card near each compass indicator. Data from the last Correction Card, located in the aircraft logbook, will be transcribed onto the new verification Compass Correction Card. Both the most current calibration and verification cards will be maintained in the manila envelope in the back of the aircraft logbook if the verification is the most current. The only items authorized to be changed when transcribing the data are:

- a. The swung block on the front of the card will be changed to the date the verification was performed.
- b. The by block on the front of the card will read either in-flight or ground verification.
- c. The CDI or flight crewman who performed the verification.
- d. The geographical location of the verification.

NOTE: At no time will any of the transcribed headings from the calibration Compass Correction Card be altered when entering them on the new verification Compass Correction Card.

6.1.2.1.9 Methods of calibration are:

- a. Electrical compensation, MC-2 or equivalent, is the preferred method.
- b. Compass rose is the secondary method.
- c. Other methods described in MIL-STD-765A are authorized as alternate methods.

6.1.2.1.10 Verification method. This method uses an in-flight procedure to compare compass headings against those generated by the on board Inertial Navigation System. Acceptable comparison accuracy is +/- 2.0 degrees for flux valve compasses and +/- 5.0 degrees for standby (wet) compasses. The verification method may be used instead of standard calibration requirements described in paragraph 6.1.2.1.9 above.

6.1.2.1.11 Deviations.

6.1.2.1.11.1 In the event appropriate equipment or facilities are not available or accessible, or aircraft condition (IMC/P, PDM, or SDLM) precludes compliance with the scheduled calibration intervals, a request for deviation shall be made to the Type Wing or CGMAW and info the ACC/TYCOM via naval message prior to the scheduled calibration due date. Squadrons/units assigned to a CVW or Marine Expeditionary Unit will send the request to their parent TYPEWING or CGMAW and info the ACC/TYCOM via naval message prior to the scheduled calibration due date.

6.1.2.1.11.2 Prior to reporting activity's request for deviation, aircraft condition permitting, an airborne/ground bearing comparison check shall be accomplished using a known good reference system (Inertial Navigation System, Tactical Navigation, ground control radar, or Automatic Directional Finder) against the aircraft compass system. The comparison check certifies only apparent operation of the magnetic compass system in question and shall be substituted only until such time as either the preferred or alternate method of calibration/verification can be accomplished.

6.1.2.1.11.3 When requesting a deviation, provide the following information:

- a. Aircraft T/M/S.
- b. BUNO.
- c. Date calibration/verification due.
- d. Reason (unit deployed afloat, facilities or equipment not available).
- e. Length of request.
- f. Method of bearing comparison check and results.

6.1.2.1.12 Documentation of unscheduled and scheduled calibration/verification.

6.1.2.1.12.1 Compass calibration/verification subsequent to a noted discrepancy will be documented on the same MAF or WO requiring correction of a reported discrepancy. These maintenance actions are defined in [Chapter 15](#).

6.1.2.1.12.2 Aircraft Logbook/ALS. Calibration shall be documented in the Miscellaneous History Section (OPNAV 4790/25A) of the aircraft logbook.

6.1.2.1.13 The aircraft logbook or CM ALS shall be inspected to ensure currency of compass calibration upon receipt of the aircraft.

6.1.2.2 Armament Programs

Due to the length and complexity of instructions pertaining to armament programs, the following lists only pertinent instructions on applicable programs:

- a. OPNAVINST 8020.14.
- b. NAVMEDCOMINST 6470.2 and OPNAVINST 5100.27/MCO 5104.1.
- c. NAVSEA SW020-AF-HBK-010.
- d. OPNAVINST 8000.16.
- e. A} OPNAVINST 8023.24.
- f. A} MCO 8023.3.

6.1.3 O-Level Maintenance; Line Division

6.1.3.1 The Line Division performs O-level maintenance functions in assigned branches, such as Plane Captain, Troubleshooter, and SE (when established), as directed by the MO and in conjunction with other Production Divisions. The Line Division shall:

- a. Assign personnel, as required, to assist in maintaining and inspecting aeronautical equipment.
- b. Coordinate and direct troubleshooters. The MO may permanently assign personnel from other divisions to the Troubleshooters Branch of the Line Division, or may assign them to the branch on a daily basis, as circumstances warrant. Troubleshooters shall correct those discrepancies discovered during a launch or immediately preceding a launch that can be corrected quickly.
- c. Initiate requests to Maintenance Control for unscheduled maintenance.
- d. Nominate qualified personnel as CDIs.
- e. Initiate requests for material required for doing assigned tasks.
- f. Ensure the cleanliness of assigned aircraft and spaces.
- g. Assume custody and accountability for tools and SE assigned to the division.
- h. Ensure the security and proper ground handling of aeronautical equipment.
- i. Recommend changes in methods and techniques to promote maximum ground safety, safety of flight, and material readiness of assigned aeronautical equipment.
- j. Carry out an effective FOD Prevention Program.
- k. Ensure all personnel taking oil samples, servicing, and performing maintenance on engine/gearbox systems are fully aware of the importance of correctly documenting oil consumption and procedures to be followed when high oil consumption is suspected.

6.1.3.2 Troubleshooters

6.1.3.2.1 Troubleshooters are responsible for providing a rapid means of troubleshooting and repairing discrepancies which occur or are discovered on the flight line. They act as technical advisors to plane captains to ensure timely completion of turnaround and daily inspections and to determine the extent and depth of flight line discrepancies.

6.1.3.2.2 Troubleshooters must be knowledgeable in flight line operations, flight line safety, and the applicable aircraft systems.

6.1.4 O-Level Maintenance; Unmanned Aerial Vehicle (UAV) Division

6.1.4.1 Functions. The UAV Division, when established, shall:

- a. Supervise, coordinate, and complete periodic maintenance, inspections, decontamination, and rehabilitation of recoverable UAVs. Crew leaders and other personnel designated by the MO will be permanently assigned. Additional personnel will be made available, as required, from other divisions.
- b. Perform applicable O-level and selected I-level maintenance functions in those areas outlined in [Chapter 3](#) and [Chapter 4](#), as directed by the MO and in conjunction with other production divisions.

- c. Keep Maintenance Control advised of the status of work in progress.
- d. Ensure cleanliness of hangar and assigned spaces.
- e. Nominate qualified personnel for CDI designation.
- f. Initiate requests for material required for doing assigned tasks.
- g. Assume custody and accountability of tools and SE assigned to the division.
- h. Interpret applicable directives.
- i. Recommend changes in techniques to promote ground safety, flight safety, and material readiness of recoverable UAVs.
- j. Carry out an active FOD Prevention Program.
- k. Initiate requests to Maintenance Control for unscheduled maintenance.
- l. Provide UAV loading, launching, and recovery crew members and supervisors.
- m. Expedite the accomplishment of assigned work.
- n. Carry out an effective Corrosion Prevention and Control Program.

6.1.4.2 Detachments. UAV operating detachments are organized and equipped in a manner which enables them to operate UAVs and perform O-level maintenance tasks aboard ship or at remote operating sites. The extent of maintenance performed varies, dependent upon facilities available and deployment length.

6.1.5 I-Level Maintenance; Power Plants Division

NOTE: All IMA/FRC and MALS power plant work center supervisors shall complete the IMA/FRC Power Plant Work Center Supervisor course (D/E-555-2022).

6.1.5.1 Three-Degree Gas Turbine Engine Repair

6.1.5.1.1 The Power Plants Division has certain responsibilities associated with the Gas Turbine Engine Maintenance Program contained in [Chapter 10](#). The objective of this program is to provide the policy and procedures whereby maintenance activities can effectively accomplish their assigned engine maintenance responsibilities.

6.1.5.1.2 Power Plant Production Planning. The purpose of planning to establish production goals is two-fold. First, to meet the demands of supported activities as well as the ACC/TYCOM tasking requirements for forward deployment support. Second, to maintain a sufficient quantity of RFI pool QECA's to absorb surge or cyclic demands, thus allowing a planned, balanced production effort.

6.1.5.1.2.1 To achieve these goals the following information should be considered in developing realistic monthly production requirements.

6.1.5.1.2.2 Historical demand - average monthly inductions for the following reasons:

- a. Repair.
- b. Inspection.

- c. Life limited component replacement.
- d. TD compliance.
- e. QECA buildup.

6.1.5.1.2.3 External demand

- a. Forward deployment support.
- b. COMNAVAIRSYSCOM goals.

6.1.5.1.2.4 Cyclic demand - variations in inductions based on:

- a. Deployments.
- b. Operational commitments.
- c. Seasonal impacts.

6.1.5.1.3 To achieve established monthly production requirements, selective induction of retrograde engines is desirable. That is done by managing inductions, for example, repair, inspection, and QECA buildup, to vary the workload during surge or cyclic demand.

6.1.5.1.4 When the activity cannot meet the required production goals because of deficiencies, for example, manning, skills, and facilities, refer to the procedures for improving repair capability.

6.1.5.2 Power Plant Related Technical Manuals

6.1.5.2.1 Power plant related technical manuals are presented in several different arrangements governed by the preparation specification used at the time they were developed. Additionally, the engine inspection and repair method (installed or removed) usually indicates the major category (01-aircraft or 02-power plants). Technical information required for the inspection or repair may be found in both of the major categories. RCM Analysis of power plants may cause changes in technical manual content due to refinement of PM requirements. As a result, each engine T/M/S is unique in the format of technical manuals required for support. Each activity will research the requirement for its assigned T/M/S and degree of repair to ensure the correct technical manuals are available and used. They are:

- a. MRCs consisting of CERRCs and QECA.
- b. MIMs in conventional and WP formats.
- c. SCCs.

6.1.5.2.2 Two groups of technical manuals exist for the control and performance of engine repair. They are the CERRCs and accompanying CERR SCC with conventional MIM or MIM WP with accompanying CERR SCC. Each engine T/M/S may have one or the other. Preparation specifications have been released directing the revision of all CERRCs and accompanying CERR SCCs to the MIM WP format with accompanying CERR SCCs assigned to them. The following paragraphs explain and describe the various technical manuals required for repair.

6.1.5.2.2.1 Engine Inspection MRCs

6.1.5.2.2.1.1 Major. These inspections are accomplished using QECA MRCs. These cards contain major QECA maintenance requirements to inspect the engine for material degradation and perform essential PM. The cards include the major engine requirements followed by a separate QEC section for each aircraft application. An SCC is included to program accomplishment of the inspection in proper sequence. Discrepancies discovered are corrected using instructions contained in the applicable MIM. These cards are used to perform major inspections on uninstalled engines.

6.1.5.2.2.1.2 Phase. These inspections are accomplished using phase MRCs. These cards cover the total system scheduled maintenance requirements divided into phases which are performed at specific intervals. All installed engine inspections and QEC components are included.

6.1.5.2.2.2 CERRCs

6.1.5.2.2.2.1 CERRC sets provide step-by-step procedures and instructions for engine disassembly to a controlled depth. The depth of disassembly is equal to that which is authorized for designated third, second, and first degree repair activities by NAVAIR NOTE 4700 and is consistent with the provisioning of spare parts, tools, and SE for these activities. There are no repair procedures within CERRC sets. For repair instructions consult the applicable engine MIM.

6.1.5.2.2.2.2 The information in the CERRCs is based on the contents of the reference publications and on conclusions reached during verification. Should the information in the card sets conflict with the information in technical manuals with a later date, the most current information for the specific task will be followed.

6.1.5.2.2.2.3 In using the CERRC set it is unnecessary to perform maximum disassembly each time an engine is processed for repair. Perform disassembly only to the depth which is required to ensure the engine is RFI. When less than complete disassembly is required, use only the applicable cards.

6.1.5.2.2.2.4 Each card is identified by number for accountability purposes and to provide a means for crediting work accomplishment. The CERRC set numbering sequence does not reflect the sequence in which the work is to be accomplished. This is controlled by the companion SCC.

6.1.5.2.2.2.5 Task cards that contain major engine inspection requirements are identified by an asterisk (*) preceding the card title and the procedural steps within the cards. The affected task cards are identified on the SCC by an asterisk preceding the card number. The requirements that are preceded by an asterisk must be accomplished each time an engine is processed for first-degree repair. When the items preceded by an asterisk have been accomplished, the engine is to be considered zero time for inspection purposes.

6.1.5.2.2.2.6 QA cards are included to emphasize the need for inspection during or after performance of critical procedures. To ensure accomplishment of these requirements in their proper sequence, review QA cards referenced on the task card before commencing the task.

6.1.5.2.2.3 Technical Manuals for I-Level Maintenance (WP format). The procedures for the use of the WP format are identical to those identified for CERRCs in the previous paragraph except the WP format contains instructions for disassembly, inspection, repair, reassembly, and testing. In addition, it identifies SE and SE maintenance requirements.

6.1.5.2.2.4 CERR SCC. The CERR SCC is a graphic presentation that will program the accomplishment of CERR (third, second, and first-degree) in a logical order. The CERR SCC is oriented to actual work time and manpower usage. This element provides the only record of engine status during repair, including QA inspections. CERR SCCs are used with both the CERRC and WP formats.

6.1.5.2.2.5 Technical Manuals to Perform Tasks (Inspection/Repair). Selection of the technical manual to be used cannot be made until the task has been determined for inspection or repair. The following guidance applies in most cases:

a. Engines inducted for inspection/repair will receive a thorough screening using procedures in [Chapter 3](#). Additionally, a preinduction inspection will be accomplished prior to disassembly as required by supporting technical manuals or QECA MRCs/CERRCs/WP and controlled by the applicable SCC.

NOTE: The preinduction inspection normally consists of oil filters, fuel filters, freedom of rotation, external visual, and in some cases, borescope inspections. A preinduction test cell run should be performed to verify the engine operating parameters if permitted by the material condition.

b. If discrepancies discovered during AESR screening and preinduction inspection can be corrected within the scope of the QECA MRCs, proceed with the inspection using this deck. Should they exceed the scope of the QECA MRCs, verify the required action(s) with the maintenance allocation table of the applicable MIM and NAVAIR NOTE 4700. If the repair is within the activity's assigned degree of repair, proceed using the applicable CERRC or WP manual and accompanying CERR SCC. If not, take appropriate BCM action.

c. Engines Inducted for Repair. Discrepancies discovered during the AESR screening and preinduction inspection shall be verified against the maintenance allocation table of the applicable MIM and NAVAIR NOTE 4700. If the repair is within the activity's assigned degree of repair, proceed using the applicable CERRC or WP manual and accompanying CERR SCC. If not, take appropriate BCM action.

NOTE: For engines requiring third or second-degree repair also consult inspection criteria ([Chapter 3](#)). Engines requiring first degree repair will have all inspection requirements performed. First-degree repairs of a minor nature not requiring an excessive amount of man-hours may have the inspection requirements waived by the ACC/TYCOM.

6.1.5.2.2.6 Component Repair Technical Manuals. These accessory manuals are prepared as individual manuals containing D-level/I-level maintenance procedures check/test, inspection/repair, and the IPB. When pursuing improved repair capability for components related to the engine repair program refer to [Chapter 5](#).

6.1.5.3 Modular Engines

6.1.5.3.1 Modern technology and new maintenance concepts have changed some inspection and repair management procedures. Newly designed engines are constructed in separate modules, for example, compressor, combustion, turbine, afterburner, gearbox, torquemeter, or combinations thereof to simplify the repair and maintainability process. Modular engines are routinely inspected while installed using the special/phase inspection concept. They are removed only for cause, for example, LCF, failure, and maximum operating time.

6.1.5.3.2 When the engine is removed, perform the same AESR screening and preinduction inspection process as with other engines. Repair of the modular engine is accomplished by removal and repair/replacement of the defective modules. This repair action is accomplished using the applicable CERRC and accompanying CERR SCC or with conventional MIM or WP with accompanying CERR SCC.

6.1.5.3.3 Inspection requirements subsequent to or concurrent with engine repair vary. Some modular engines, for example, F404 and T700, have engine MRC decks with accompanying SCCs. Earlier designed modular engines, for example, T400 and T56, have the QECA MRCs with accompanying SCC. Subsequent to or concurrent with repair, the inspection requirements outlined in the applicable engine MRC/QECA MRCs will be performed.

6.1.5.4 Scheduled Removal Components (SRCs)

The appropriate engine shop(s)/work center(s) will verify SERNOs of installed SRC/EHR/ASR or CM ALS components during the inspection/repair action. To preclude extensive disassembly, only those accessories/components which are exposed during required maintenance actions need be verified. The inventory is performed using a locally prepared form containing a preprinted list of SRC/EHR/ASR or CM ALS components with a column provided for recording the serial numbers and part numbers of the installed items. NTCSS Optimized OMA NALCOMIS activities use the Life Limited Component Report PART II to verify component SERNOs and part numbers. It is desirable to ensure RFI engines have all SRC/ASR or CM ALS items with sufficient time remaining to reach the next scheduled engine removal.

6.1.5.5 Engine Inspection/Repair Control and Flow

Separate but interrelated functions and tasks are combined to make up the workload in support of engine maintenance. Proper control, coordination, and management of all available resources are required. The limited time available for the performance of maintenance does not allow these functions/tasks to be considered, planned, and performed on an individual basis. They must be combined and sequenced properly if the overall job is to be accomplished efficiently.

6.1.5.6 Power Plants Supply Procedures

6.1.5.6.1 Due to the critical nature and high dollar value of aircraft engines, several nonstandard procedures apply. Most engines in work at the I-level engine shop(s)/work center(s) are, in fact, supply assets. Engines in an awaiting parts status normally remain physically in the Power Plants Division due to the size of the component. Parts ordered to support expeditious repair are ordered using the squadron priority. Any engine status changes in Power Plants must be coordinated with Production Control.

6.1.5.6.2 Replacement parts and components identified through AESR screening and engine preinduction inspection shall not be placed on order unless the required repairs are verified against the maintenance allocation chart of the applicable engine MIM, and the repair is within the activity's assigned degree of repair per NAVAIR NOTE 4700.

6.1.5.6.3 Replacement parts and components should be stored in the area which provides the highest degree of protection, preservation, and accountability.

6.1.5.6.4 PEBs contain high usage consumable material. Repair activities shall develop a listing of items required to support the degree of repair assigned. These items are identified on the consumable material listing of the applicable engine technical publications (MRCs/MIMs). The list shall be provided to the Supply Officer for PEB establishment/maintenance.

6.1.5.7 Engine Test Facilities

6.1.5.7.1 Jet engine test facilities (cell or stand) maintenance responsibility is assigned as follows:

a. Permanent Facilities Ashore. Maintenance of the structure and systems, such as fuel, water, air, electrical wiring, fire extinguishing, and thrust bed repairs, will be the responsibility of the station public works department. The work center having physical custody is responsible for maintenance of the control console, engine connector panel, performance of all scheduled maintenance, and the overall material condition of the facility.

NOTE: A} These provisions are also applicable to FRC engine test facilities.

b. Permanent Facilities Afloat. The below deck fuel system, electrical and fire extinguishing systems, and deck mounting will be maintained by the ship's engineering/air department as appropriate. The work center having physical custody is responsible for maintenance of the control console, engine connector panel,

thrust bed, above deck fuel system, the performance of all scheduled maintenance, and the overall material condition of the facility.

c. Mobile Facilities. Basic systems, such as water, air, CO₂, and station electrical power supply, shall be provided and maintained by Public Works Department. The work center having physical custody shall ensure the test cab, control console, engine connector panel, instrumentation, thrust bed and restraint equipment, fuel, and electrical system are properly maintained and that all scheduled maintenance is performed.

6.1.5.7.2 The maintenance and upkeep of jet engine test facilities and ancillary equipment is done as follows:

- a. Compliance with preoperational and periodic MRCs is mandatory.
- b. A fresh water wash down of each test facility and surrounding area will be accomplished at least once a week afloat, once a month ashore, or more often as conditions dictate, to minimize the adverse effects of dirt, dust, and salt accumulation. If environmental issues preclude shore activities from meeting this requirement, a hand wipe down using environmentally approved material will satisfy the requirement. Activities having facilities which meet this criteria will coordinate with their respective ACC/TYCOM to obtain approval for use of alternative methods. Approval will be predicated on liaison between ACC/TYCOM and LMTC. The LMTC for the Environment determines acceptable cleaning material.
- c. Suitable facilities shall be provided for storing auxiliary equipment when uninstalled and not in use.
- d. The engine stand junction box and engine wiring harness shall be protected by a suitable weatherproof cover when not in use.
- e. Suitable supports shall be used to ensure interconnecting cables, hoses, and lines do not come in contact with the ground. Water, grease, or other foreign matter shall not be allowed to accumulate on the cables.
- f. A jet engine test cell malfunction report will be forwarded by message to the ACC/TYCOM in the format specified by the ACC/TYCOM, when a facility becomes inoperative to the extent that an unacceptable production delay is anticipated. The ACC/TYCOM will advise the originator of the report when corrective action cannot be effected with ACC/TYCOM available assets and expertise.

6.1.5.7.3 Electrical Power Requirements. The instruments used in conjunction with the test stand are designed to operate on predetermined power ratings within relatively small tolerances. Changes in voltage or frequency or a combination of both will effect the accuracy of the instrumentation and contribute to component failures. Therefore, whenever possible station or commercial power will be used. If not available, and electrical power is supplied by a portable generator, the operator will ensure:

- a. The portable generator is 115 volts A.C., three phase, and four wire.
- b. The portable generator is monitored to ensure its voltage and frequency remain stable.

WARNING: TO PROVIDE FOR PERSONNEL SAFETY, THE CONTROL CAB, ENGINE STAND, AND PORTABLE GENERATOR SHALL BE CONNECTED BY AUXILIARY GROUNDING CABLES THAT WILL HAVE A COMMON CONNECTION TO A SUITABLE GROUNDING DEVICE, FOR EXAMPLE, A METAL STAKE DRIVEN INTO THE GROUND A SUFFICIENT DEPTH TO ENSURE PROPER GROUNDING.

6.1.5.7.4 Jet Engine Test Facility Calibration. I-level activities with calibration capability will use calibration intervals cited in the Metrology Requirement List.

6.1.5.7.4.1 A qualified operator and an electrician will be available at all times to assist during calibration and work by the field team representatives.

6.1.5.7.4.2 A list of known instrument discrepancies will be compiled and made available to the calibration team.

6.1.5.7.5 Jet Engine Test Facility Usage Report. When directed by the ACC/TYCOM, a jet engine test facility usage report will be submitted.

6.1.5.7.6 Operational Training and Certification. GTETS Operator training, certification, proficiency, and recertification requirements are outlined in [Chapter 10](#), paragraph 10.23.

6.1.5.7.7 Engine Test Facility Procedures. Using the procedures outlined in the applicable engine MIM and the test system preoperational MRCs, all jet engine test facility custodians shall prepare a check list of starting, shutdown, and emergency procedures to be used during engine test system operation. The check list will be available within the control cab and used by all operators.

6.1.5.7.8 Engine Test Cell Technical Evaluation. Prior to correlation, all newly constructed and significantly modified (affecting aerodynamic or thermodynamic flow) or rebuilt fixed engine test facilities must undergo a comprehensive technical evaluation conducted by the NAVAIRWARCENACDIV Lakehurst NJ, under the direction of COMNAVAIRSYSCOM, to ensure they are suitable and supportable for use. Unless waived by COMNAVAIRSYSCOM, a technical evaluation and an engine correlation must be satisfactorily completed before service engines can be made RFI and installed in aircraft. Evaluation should be requested by message to NAVAIRWARCENACDIV and COMNAVAIRSYSCOM prior to acceptance of the facility by the local activity resident officer in charge of construction.

6.1.5.7.9 Engine Test Cell Correlation. To ensure engines consistently meet all performance requirements, a test cell correlation for each engine type tested shall be conducted for all enclosed, permanent turbofan, jet, shaft, or prop engine test facilities per paragraph 6.1.5.7 above. Test cell correlation may also be required when engine test procedures and parameters are changed or the design of engine dress kit hardware, for example, inlet screen/bellmouth or exhaust nozzle, is modified such that it could affect aerodynamic/thermodynamic flow. Outdoor (open air) jet engine test systems generally do not require correlation unless certain site-specific conditions alter airflow dynamics to the engine. Outdoor (open air) turboshaft engine test systems using a torque tube to measure torque output also require correlation. If a torque tube is replaced with a different serial number torque tube for any reason, a recorrelation must be performed for both indoor and outdoor turboshaft test systems. The interval between correlation shall not exceed 3 years to maintain integrity of engine performance. However, with joint ACC/TYCOM and NAVAIRWARCENACDIV Lakehurst NJ concurrence, an extension of the correlation frequency requirement for a specific type engine test system may be granted. All activities are responsible for contacting the ACC/TYCOM and NAVAIRWARCENACDIV Lakehurst NJ concerning test cell correlation requirements.

6.1.6 I-Level Maintenance; Airframes Division

6.1.6.1 The Airframes Division has certain responsibilities associated with the Hydraulic Contamination Control Program ([Chapter 10](#), paragraph 10.5) and the Tire and Wheel Maintenance Safety Program ([Chapter 10](#), paragraph 10.6).

6.1.6.2 Airframes Division personnel involved with hose and tube fabrication/testing shall be familiar with the Aviation Hose and Tube Manual, NAVAIR 01-1A-20. This manual is a single source of information relating to COMNAVAIRSYSCOM policies for naval aircraft and related hose and tube assemblies. The NAVAIR 01-1A-20 contains two sections which provide, in detail, the methods to be used to fabricate, repair, test, clean, inspect, and store hose and tube assemblies. The manual contains COMNAVAIRSYSCOM approved methods to produce hose and tube assemblies suitable for installation or storage, and

takes precedence over and supersedes all other COMNAVAIRSYSCOM instructions, accessory bulletins, LPSs, and LESs issued prior to the date of the manual. When any publication is in conflict with NAVAIR 01-1A-20, NAVAIR 01-1A-20 shall take precedence.

6.1.6.3 The fabrication of sheet metal parts for internal structural repair requires the careful adherence to the accepted standards of aircraft sheet metal work. Information needed to fabricate replacement parts is usually found on the engineering drawings, while information concerning repairs may be found in the structural repair manual for the aircraft. Aircraft structural repair manuals contain information on extrusions and fabrication data for various sheet metal equivalents. These manuals will indicate the type of material to be used in each repair. If the correct material is not available, NAVAIR 01-1A-1 should be checked for an acceptable substitute.

6.1.7 I-Level Maintenance; Avionics

6.1.7.1 Work Center 670 is responsible for managing and performing calibration and repair on selected TMDE. RCM treats calibration tasks as on-condition PM tasks, and as such, all calibration tasks for TMDE are determined in the same manner as on-condition tasks.

6.1.7.1.1 Scheduling of TAMS into the PME work center and documentation of calibration actions will be accomplished under the guidelines established in OP43P6B. Requests for the MEASURE User's Manual should be addressed to:

MEASOPCONCEN		MEASOPCONCEN
1084 POCAHONTAS ST BLDG V-29	or	PO BOX 357064
NORFOLK VA 23511-2198		SAN DIEGO CA 92135-7064

The activity, quantity desired, and justification for the request must be stated.

6.1.7.1.2 [Figure 6-1](#) is an example of a possible VIDS board layout in a PME work center. It only shows column 1; the remainder of the board format may be similar to the Production Control board format.

6.1.7.1.3 The Naval Aviation METCAL Program is detailed in [Chapter 10](#), paragraph 10.18.

6.1.7.2 All maintenance, supply handling, and accounting of communications security and telecommunications security equipment will be performed using the procedures contained in the CMS-1.

6.1.7.3 At Navy and Marine Corps activities, repair of aerial photographic equipment, including side looking radar and infrared equipment, will be performed in the Avionics Division of the IMA/FRC.

6.1.7.4 The Miniature/Microminiature Program is detailed in [Chapter 10](#), paragraph 10.22.

6.1.7.5 Cleaning and corrosion prevention and control of avionics equipment shall be conducted using the policy established in NAVAIR 01-1A-509 (series).

6.1.8 I-Level Maintenance; Armament Division

6.1.8.1 Maintenance (including calibration), inventory control, and reporting of armament equipment is an integral part of the task of maintaining airborne weapon systems. Maintenance functions, policy, and responsibilities for armament equipment are listed in OPNAVINST 8000.16.

6.1.8.2 The Armament Division's objective is to achieve and maintain maximum material readiness, safety, and conversion of armament equipment through command attention, policy direction, and appropriate administration by all activities responsible for armament equipment. Included are:

- a. Maintenance (including calibration) and repair of armament equipment at that level of maintenance which will ensure optimum use of resources.
- b. The protection of armament equipment from the elements through the execution of active cleaning, corrosion control, preservation, and storage programs.
- c. The execution of a perpetual asset inventory control system.
- d. The collection, analysis, and use of pertinent data in order to effectively improve armament equipment material readiness, safety, and use while simultaneously increasing the efficient and economical management of personnel, monetary, and material resources.

6.1.9 I-Level Maintenance; Aviation Life Support Systems (ALSS) Division

a. The maintenance of ALSS is an integral part of maintaining aircraft. It is essential that the procedures and the assigned responsibilities for those systems be clearly understood and complied with to ensure maximum safety/survivability as well as aircraft readiness is achieved. The following applies:

(1) ALSS is defined as those items of equipment and clothing needed to allow aircrew members and aircraft passengers to:

- (a) Function within all parameters of the flight environment.
- (b) Safely egress from disabled aircraft and descend/ascend to the surface.
- (c) Survive on land and water and interface with rescue forces.

(2) ALSS include such items as escape systems, environmental systems, fire extinguishing systems, aircrew clothing, survival kits, personnel parachutes and associated hardware, life rafts and life preservers, anti-exposure suits, survival radios and other emergency signaling equipment, flight helmets, oxygen equipment, anti-G suits and associated hardware, and other miscellaneous survival and life support items. It is essential that the procedures and assigned responsibilities for these systems be clearly understood and complied with to ensure maximum safety/survivability as well as aircraft readiness is achieved.

b. Policies. The DOD's three-level maintenance concept is applicable to ALSS. ALSS will be maintained using both the classification of maintenance functions in [Chapter 3](#) and procedures in the applicable equipment/aircraft technical manuals. The following applies:

NOTES: 1. The 800 Division is a production division, therefore, Production Control will control production within this division.

2. Cross training is not permitted into the following: AME areas of egress systems or PR I-level areas of responsibility. Only qualified I-level personnel (graduates of approved PR school) will be permitted to pack, repair, or perform calendar inspections on personnel parachutes, drogue chutes (excluding drogue chutes in nonremovable head boxes), SSKs, and inflatable survival equipment. ALSS O-level and I-level areas of responsibility are outlined in NAVAIR 13-1-6 series manuals and shall be strictly followed.

(1) Only qualified, certified I-level personnel, will be permitted to pack, repair, or inspect personnel parachutes, drogue chutes (excluding drogue chutes with nonremovable head boxes), SSKs, and inflatable survival equipment.

(2) Only qualified, certified I-level personnel, shall be permitted to service or inspect egress systems.

c. PR/AME Qualifications. The following applies:

(1) A qualified PR is defined as a graduate of the Navy PR "A" School.

(2) A qualified AME is defined as a graduate of the Navy AME "A" School and CENNAVAVNTECHTRAU for specific T/M/S egress systems. They shall be allowed to perform egress system maintenance.

d. I-level activities supported by contract maintenance shall use only qualified, certified civilian personnel to perform I-level maintenance on ALSS/egress systems. The following applies:

(1) I-level activities supported by contract maintenance shall use civilian personnel (graduates of the Navy PR or Air Force or Army MOS course) to perform PR I-level maintenance on ALSS.

(2) I-level activities supported by contract maintenance shall use civilian personnel (who graduated from the Navy AME "A" School and CENNAVAVNTECHTRAU for specific T/M/S or T/M/S factory equivalent training course) to perform egress system maintenance.

(3) In addition to paragraphs 6.1.9d(1) and 6.1.9d(2) above, for contract maintenance personnel to be designated as QA Inspectors on ALSS/egress equipment, a documented working history with ALSS/egress equipment is required.

NOTE: Use of personnel not qualified, certified to perform maintenance on egress systems is not authorized.

e. Responsibilities. Responsibilities and procedures for all Navy and Marine Corps activities are specified in the aviation crew systems manuals, aircraft technical manuals, and other specific equipment technical manuals. Problems and recommended changes to these procedures and ALSS equipment functions are to be submitted per [Chapter 10](#), paragraph 10.9.

6.1.9.1 Pools

6.1.9.1.1 A pool of ALSS spare assemblies (parachutes, life rafts, SSKs, life preservers, survival radios, and miniature regulators) shall be established by IMAs/FRCs ashore. The spare ALSS assemblies are owned by the station/MALS Aviation Supply Officer and are inventoried, maintained, and stored by the local IMA/FRC. This material will be maintained, in a rotatable ALSS pool located in the IMA/FRC 800 Division. IMA/FRC personnel shall ensure all spare ALSS equipment is properly stored, RFI upon demand by O-level activities, and on hand quantities match those on the activity's supply records.

6.1.9.1.2 When the deployment site does not have an ALSS pool, the supporting shore-based IMA/FRC is responsible for providing RFI assemblies equal to 10 percent of those required for full outfitting of the deploying squadron or detachment to the deployed site.

6.1.9.1.3 Deployed shipboard IMAs will be responsible for providing all repair parts and components required to support the embarked squadrons' ALSS equipment.

6.1.9.1.4 Upon completion of deployment, the shipboard IMA is responsible for returning the same number of RFI assemblies originally provided by the supporting shore-based IMA/FRC. When the deployment site does not have an established IMA, the deployed site Supply Officer is responsible for the return of all unused assemblies and adequate documentation on the used material to guarantee proper stock replacement, carcass tracking, and charges.

6.1.9.1.5 Personal survival equipment, such as helmets, survival vests, gloves, flight suits, or items of squadron equipment which are not normally inducted into the IMA/FRC for maintenance, are not to be included in ALSS pools.

6.1.9.2 Aviation Life Support Systems (ALSS) Safety

6.1.9.2.1 ALSS, by virtue of their unique function and responsibility, present inherently hazardous situations when approached improperly. Included in the overall concept of division and work center safety programs are several areas peculiar to ALSS. Emphasis must be placed on these areas at all levels of command, with support from each person that may come in contact with them. Division chief petty officers or NCOICs, leading chief petty officers or NCOs, and work center supervisors must recognize the responsibility incumbent upon safety petty officers or NCOs and assist, when required, in correcting these hazardous situations. Safety petty officers or NCOs must be guided by a strict sense of responsibility and remain alert to any possibility of an unsafe situation before it develops.

6.1.9.2.2 Hazardous areas peculiar to ALSS include but are not limited to:

- a. LOX generating, handling, and servicing.
- b. LOX converter systems.
- c. Gaseous oxygen handling and servicing.
- d. Gaseous oxygen and nitrogen generating systems.
- e. Test stands and SE using low and high pressure gauges.
- f. Cartridges and CADs, such as installed and uninstalled parachute automatic actuators, ballistic spreading guns, ejection seats and components, canopy systems, and components containing explosive devices.
- g. Personnel mounted pyrotechnics.

6.1.9.3 Storing and Handling Uninstalled Egress Systems and Explosive Devices

6.1.9.3.1 The storage of removed cartridges, CADs, and PADs must be accomplished per NAVAIR 11-100-1.1-CD.

6.1.9.3.2 Egress/Explosive systems with installed explosive devices which are not to be installed in the aircraft for a period of time will be stored in a secure area. The storage area environment and time limitation are defined in NAVAIR 11-100-1.1-CD, NAVSEA OP 4, OP 5 VOL I, and other applicable directives.

6.1.9.3.3 Egress/Explosive system devices involved in mishaps will be rendered safe and disposed of by explosive ordnance disposal personnel only, per NAVAIR 11-100-1.1-CD after release by the AMB.

6.1.9.3.4 Ejection seats and escape system components are structurally and functionally designed for one time use only. Ejection seats or escape system components that have been ejected or fired, regardless of apparent condition, shall be scrapped per current regulations after release by the AMB.

NOTE: The 90 day RFI shelf life ends and time will commence for inspection purposes when the ALSS asset is removed from the IMA/FRC pool storage facility.

6.1.9.3.5 ALSS RFI Shelf Cycle. Spare ALSS assemblies maintained in the IMA 800 Division rotatable pool are authorized up to 90 days RFI shelf life before they begin to accumulate time for inspection purposes.

Storage and environmental conditions for all RFI equipment must meet standards set forth in NAVAIR 13-1-6 series manuals and comply with NAVAIR 11-100-1.1-CD (where applicable).

6.1.9.4 Training

Follow-on formal training is available to the AME and PR through the appropriate C school. Training is also available through CENNAVAVNTECHTRA and FREST.

6.1.9.5 Aviation Life Support Systems (ALSS) Publications

6.1.9.5.1 The aviation crew systems manuals, NAVAIR 13-1-6 series manuals, provide technical information related to the configuration, application, function, inspection, and maintenance of ALSS.

6.1.9.5.2 Additional technical manuals which provide specific information for related items or systems are:

- a. NAVAIR 01 manuals - specific systems by the T/M/S.
- b. NAVAIR 03 manuals - specific equipment technical publications.
- c. NAVAIR 06 manuals - oxygen, nitrogen, and cryogenics.
- d. NAVAIR 11 manuals - cartridge, CADs, PADs devices, and pyrotechnics.
- e. NAVAIR 16 manuals - survival radios.
- f. NAVAIR 17 manuals - oxygen components and test equipment.

6.1.9.5.3 Specific maintenance actions are detailed in MRCs and SPCs. These cards not only give step by step procedures but include the number of persons and consumable parts required to complete a task. MRCs are issued by COMNAVAIRSYSCOM and contain scheduled maintenance requirements applicable to Olevel and I-level activities for the specific aircraft or equipment for which they are issued. SPCs provide a ready reference for performing scheduled maintenance on a specific type of aircrew survival equipment and are an extension of the NAVAIR 13-1-6 series manuals. Both, MRCs and SPCs are presently used in the performance of maintenance requirements and have been the cause of confusion in numerous fleet activities. SPCs are being replaced by MRCs as manuals are revised. Care should be exercised to ensure the most current publication is used.

6.1.9.5.4 ALSS Inspections. The scheduled maintenance requirements for aircraft and man mounted equipment are published in the applicable aircraft MRCs and NAVAIR 13-1-6 series manuals. They are based on calendar days and are authorized a plus or minus three days deviation during compliance by the prescribed maintenance level.

6.1.9.6 Aviation Life Support Systems (ALSS) Tool Control

Tool control within the ALSS Division is unique. In addition to policy set forth in [Chapter 10](#), paragraph 10.12, all tools must be accounted for after the repack and inspection of each item, for example, parachutes and flotation equipment. These items cannot be functionally checked prior to use. A maximum of eight like items will be submitted per MAF/WO work request covering multiple like items ([Figure 6-2](#)).

6.1.9.7 Documentation

Standardized aviation 3M documentation throughout the Navy and Marine Corps will increase the accuracy of maintenance data reporting, thereby producing a higher percentage of reliable maintenance data. The importance of accurate documentation cannot be over emphasized.

NOTE: Activities with NTCSS Optimized OMA NALCOMIS refer to [Chapter 5](#) for specific documentation requirements.

6.1.9.8 Planned Maintenance System (PMS) for Aviation Life Support Systems (ALSS)

The PMS consists of scheduled maintenance and unscheduled maintenance functions. An effective maintenance program requires the use of COMNAVAIRSYSCOM MRCs. The MRCs present the maintenance tasks required to maintain the equipment in an effective operational status. To ensure complete operational readiness, items such as CO2 transfer pumps, webbing cutters, and sewing machines in the ALSS Division will be included in the PMS.

6.1.9.9 In-Service Support Center (ISSC)

Each item in an ALSS falls under the cognizance of an engineering activity known as an ISSC (formerly FST). ISSCs are charged with providing data and assistance of a technical nature. ISSC members may be located at FRCs, NAVAIRWARCENWPNDIV, Naval Air Engineering Station, Naval Air Warfare Training Systems Division, Naval Weapons Station, Naval Weapons Center, or at other COMNAVAIRSYSCOM team locations.

6.1.10 I-Level Maintenance; Support Equipment (SE) Division

The DON's three-level maintenance concept is applicable to SE. The three-level maintenance concept provides classification and optimum assignment of SE maintenance functions consistent with an organization's capability to perform these functions. SE maintenance functions are classified and assigned to PMS for SE consists of the maintenance functions per [Chapter 10](#), paragraph 10.17.

a. Limited I-Level Maintenance. When an organization is deploying to an operating environment without IMA/FRC capability, predeployment planning shall include how accomplishment of scheduled maintenance of SE is to be accommodated. If in theater afloat or ashore I-level support nonavailability is anticipated due to distance or time, the deploying unit shall request all necessary I-level SE training from its supporting IMA/FRC. Successful completion of this training will allow for self sufficiency of scheduled SE maintenance for IMRL during deployment. This authority for I-level detachment maintenance of SE excludes maintenance of aircraft lifting devices that require a functional load test, proofloading that uses a portable or stationary jack tester, when NDI requirements exist, and in any situation where the appropriate special tools or SE, consumable maintenance materials, or replacement parts are unavailable. Maintenance documentation will be accomplished per [Chapter 15](#).

NOTE: SE shall not be transferred in a non-RFI status without prior approval of the cognizant SECA.

b. Calibration. Calibration is a scheduled performance evaluation and correction requirement for certain specified items of SE. Calibration is the responsibility of the Avionics Division.

c. Unscheduled Maintenance. Unscheduled maintenance is the maintenance required due to SE failures or as a result of discrepancies and deficiencies found during scheduled maintenance. Unscheduled maintenance consists of fault isolation (troubleshooting), repair or replacement, test, and calibration (if required).

d. Upon approval by the cognizant SECA, non-RFI SE being transferred shall have all Supply documentation attached to the appropriate SE Custody and Maintenance History Record (OPNAV 4790/51). All parts removed for maintenance and all received parts not installed shall be forwarded with the SE.

6.1.10.1 Maintenance Scheduling

6.1.10.1.1 The MMCO shall ensure all SE maintenance is optimally scheduled. This includes scheduled maintenance, unscheduled maintenance, and TD compliance. Monthly scheduled maintenance plans will be

developed either manually from files, or by MIS procedures, and will project the scheduled workload. If possible, SE on subcustody to user activities shall be recalled at least 1 day prior to a scheduled inspection. When operational requirements dictate, PM may deviate plus or minus 3 days on calendar cycles and plus or minus 10 percent on meter times. The next inspection will be due as if no deviation had occurred.

NOTE: When deviations described previously have been exceeded, the SE item is restricted from further operation until completion of the subject inspection, that is, after 3 days or 10 percent have passed. When PM inspections are done earlier than 10 percent or 3 days, the next inspection is due based on the date/hour/cycle the PM inspection commenced. SE reporting custodians need no higher authority to perform inspections outside authorized deviations.

6.1.10.1.2 SE/AWSE preservation is designed to protect the material condition of equipment which is not expected to be used for extended periods of time. This equipment may be preserved at any time, regardless of material condition, when it is determined to be in the best interest of the equipment or activity. For standardized management of personnel and resources, activities may use the following categories to determine the level of preservation desired:

- a. Category A - SE/AWSE which has anticipated usage within the next 90 days. This equipment shall be maintained under current SE/PMS directives.
- b. Category B - SE/AWSE which could possibly be used within the next 180 days. This equipment may be placed in a minimum of Level I.
- c. Category C - SE/AWSE not needed for extremely long periods of time (in excess of 180 days) may be placed in Level II or III preservation depending on the resources at the geographical area.

6.1.10.1.3 Levels of preservation for aircraft and SE/AWSE are defined below. Dehumidification (Level III) is the preferred method of preservation. The following applies:

- a. Level I: 0 - 90 days (+/- 3 days).
- b. Level II: 0 - 1 year.
- c. Level III: 0 - indefinite.

6.1.10.1.4 Corrosion Preservation/Control. QA will monitor to determine if:

- a. A PM program is in effect that ensures compliance with NAVAIR 01-1A-509 (series), NAVAIR 15-01-500, NAVAIR 17-1-125, NAVAIR 17-35FR-01, and other existing directives.
- b. Only authorized and current shelf life corrosion prevention/control materials are used.
- c. Maintenance personnel supervising or performing corrosion prevention, arrestment, and removal receive corrosion control training.

NOTE: SE in Category B or Category C preservation should be removed from the MRC inspection schedule. During normal Category B and C preservation, the "clock" stops for MRCs and is started again upon depreservation. When SE is depreserved, it shall resume its formal PMS inspection program. Refer to NAVAIR 17-1-125 for exceptions.

6.1.10.1.5 Operational commanders are authorized to defer scheduled maintenance of otherwise functional equipment, including replacement of high time components. This authority is effective only during combat, and shall not be delegated below the CO of the ship or airwing commander (as appropriate). ACC/TYCOM notification is not required except in the case of high time components which will be reported to the ACC/TYCOM by priority message when installed components are at or beyond replacement high time.

During times other than combat, operational commanders shall request authorization from the ACC/TYCOM to defer scheduled maintenance of otherwise functional equipment (excluding high time components) for operational commitments. The request shall be sent by the activity in possession of the equipment. The notification message will include the following information: SERNO, T/M/S, NOMEN, PN, and REQ NR STATUS. This authority is not to be applied to LCF or structural life limited items (those items whose disposition is "RETIRE" in the PMIC). Scheduled maintenance deferred at the local operational commander level should not exceed one interval of that maintenance event. As soon as operations permit, deferred maintenance actions must be brought current. Authorization for further deferral should be referred to the ACC/TYCOM.

6.1.10.2 Component Repair

6.1.10.2.1 Since aircraft readiness is normally dependent upon SE readiness, it is essential that IMAs/FRCs perform SE component repair.

6.1.10.2.2 Documentation is essential to component repair. Effectiveness, readiness, provisioning, procurement, funding, and manpower are based on analysis of maintenance and supply documentation.

NOTE: SE lead acid batteries, although consumable by definition, will be included in the component repair process.

6.1.10.2.3 Policies and procedures for component repair, defined in [Chapter 5](#) and [Chapter 10](#), paragraph 10.20 apply to SE and dictate that an ICRL for SE will be established. When developing an ICRL, consideration should be given to those items of consumable material that are within the capability of the IMA/FRC to repair. Component repair of engines included in the COMNAVAIRSYSCOM Nonavionic CSE QECA Program will be performed per NAVICPINST 4400.75.

NOTE: Redundancy of component repair capabilities within a currently established work center should be kept to a minimum. Ordinarily, IMAs/FRCs will perform component repair for WSE subcustodied to the Weapons Department.

6.1.10.3 Cleaning, Corrosion Control, and Preservation

6.1.10.3.1 The corrosion control and preservation policies outlined in NAVAIR 17-1-125 and [Chapter 10](#), paragraphs 10.13 and 10.17, are applicable to SE as amplified below. The procedures in NAVAIR 01-1A-509 (series) and NAVAIR 15-01-500 are applicable in part to SE. Cleaning of avionics test and measurement equipment shall be per NAVAIR 17-35FR-06 and NAVAIR 01-1A-509-1. Completion of a corrosion course is required per [Chapter 10](#), paragraph 10.13 for personnel assigned to the SE Corrosion Control Branch.

6.1.10.3.2 Since SE structures (frame and skin) are commonly made of ferrous metals, SE is not normally susceptible to intergranular corrosion and catastrophic structural failure due to corrosion as are the nonferrous metals on aircraft. However, SE end items are usually susceptible to surface and pitting corrosion and must be cleaned on a scheduled basis, as required, to preclude salt and stack gas residue or dirt and oil contaminant accumulation. Corrosion control is mandatory, and shall be performed to maintain the protective envelope on SE, and not merely for cosmetic purposes. Shipboard SE requires cleaning, corrosion prevention, and treatment more frequently than shore-based SE.

6.1.10.3.3 Corrosion prone areas in both operating and nonoperating SE are the air induction systems, metal areas subject to condensation cycles, and electrical harnesses and connectors. These areas shall be cleaned and frequently receive corrosion treatment. Additionally, all reservoirs and tanks shall be either topped off or drained and preserved.

6.1.10.3.4 Environmental conditions at SE sites vary considerably and a program for cleaning and preservation for end items of SE shall be established by the reporting custodian or may be established by the ACC/TYCOM by site category, for example, afloat, shore-based, or by geographic location, as required.

6.1.10.3.5 Fluid Handling. Various consumables, such as fuel, LOX, and hydraulic fluid are used in SE for servicing and maintaining aircraft. Because of the hazardous nature and susceptibility to contamination of these fluids, it is imperative that personnel associated with such operations have a working knowledge of them. Detailed characteristics, handling procedures, sampling, and contamination limits for fuel, LOX, and hydraulic fluids are in [Chapter 10](#), paragraphs 10.2, 10.4, and 10.5, and shall be included in each activity's SE training syllabus.

6.1.10.4 Safety

Aviation safety seeks to identify and eliminate hazards. Effectiveness and safety result from properly trained personnel using properly designed equipment under established procedures and competent supervision. It requires active participation by all personnel on a day-to-day basis to obtain desired results. Any safety effort must address the aviation and industrial aspects of safety. OPNAVINST 3750.6 specifies naval aviation mishap reporting procedures, and requires maintenance personnel to participate in investigating, reporting, and preventing ground mishaps. OPNAVINST 5100.23 and OPNAVINST 5100.19 contain safety precautions that require implementation by maintenance personnel on assigned equipment and spaces. In addition, NAVAIR 00-80T-96 provides basic information for the safe and professional use of SE in the hazardous work environment of naval aviation. QA has been assigned the overall responsibility for Maintenance Department/Division safety.

6.1.10.5 Engineering and Technical Services (ETS)

All policies and procedures applicable to ETS are applicable to all organizations using COMNAVAIR-SYSCOM funds for the procurement and use of ETS. This includes such engineering and technical services as may be required to provide technical advice to DOD personnel in the maintenance, operation, and support of SE.

6.1.10.6 D-Level Maintenance

6.1.10.6.1 D-level maintenance policy, procedures, and responsibilities for SE are in NAVAIRINST 13680.1. Requirements for D-level rework and overhaul of end items of in-use SE are determined by the user, assigned a BCM code, and submitted to SECA for approval and scheduling to the assigned FRC using the SE Rework Schedule Request (OPNAV 4790/80) ([Figure 6-3](#)). Requirements for D-level repair of in stock repairable SE are determined and scheduled by COMNAVAIRSYSCOM (AIR-6.7). D-level overhaul requirements are submitted by the SECA to COMNAVAIRSYSCOM annually for input to the SERMIS for planning, funding, and scheduling for the fiscal year. End items of SE requiring D-level maintenance that do not meet the SE rework program requirements as delineated in NAVAIRINST 13680.1 will be submitted for repair using the Depot Customer Service Program.

6.1.10.6.2 D-level rework for end items of SE is a process by which an end item is inducted into a D-level facility where the requirements listed on the SE Rework Schedule Request (OPNAV 4790/80) are evaluated by an examination and evaluation function, disassembled as required, and repaired per applicable SE rework specification sections. This process is less than a complete overhaul. The overhaul process, when scheduled by the SE Rework Schedule Request (OPNAV 4790/80), is performed per the SE rework specification overhaul sections. This will normally allow for a full service tour of 24 to 36 months. O-level activities should submit end items of SE beyond their capability to the supporting I-level activity using a MAF. The I-level activity submits rework requests for items beyond their repair capability on SE Rework Schedule Request (OPNAV 4790/80) or message per NAVAIRINST 13680.1 to their SECA. All items of SE accepted for D-level rework or overhaul scheduling will be listed on the SECA shipping schedule. SERMIS assigns

the depot control number, planned induction date, and date the unit should arrive at the depot. The assigned control number must be entered on the SE Rework Schedule Request (OPNAV 4790/80). All blocks must be completed prior to transfer to the depot and the form shall be attached to the end item when shipped. FRCs will not induct any items received without a completed SE Rework Schedule Request (OPNAV 4790/80).

6.1.10.6.3 D-level Component Rework. IMAs/FRCs are assigned component screening and repair functions, to the extent of their capabilities. When a repairable SE component cannot be repaired by the IMA/FRC, it is sent to the DRP via the Supply System for repair under the current MRIL.

6.1.10.6.4 D-level Calibration. All calibrations beyond the capability of I-level calibration activities shall be performed by D-level calibration laboratories. Calibration laboratories are listed in NAVAIR 17-35MTL-1.

6.1.10.7 Technical Data

Technical data for SE is issued in the form of technical manuals, TDs, and engineering drawings. The technical data required by each SE maintenance activity will be determined by the depth of repair being performed by the activity. There are two categories of SE TDs: SECs/SEBs, and support software changes/bulletins. For detailed TD Compliance Program management information, refer to NAVAIR 00-25-300, NAVAIR 00-500A, NAVAIR 00-500C series, NALDA TDSA NAT02, and NAVSUP Publication 2003 will provide an index of the letter type TDs that are applicable to SE. The electronic information bulletins are issued and controlled by the Naval Ships Engineering Center for their cognizant equipment.

6.1.10.8 Records, Forms, and Documents

6.1.10.8.1 Throughout the operational life of an end item of SE, many records, forms, and documents are generated for the support and management of that particular item. The following records, forms, and documents (which effect transfer of SE) are used to obtain and maintain the history of operation, maintenance, and configuration status:

a. Material Inspection and Receiving Report (DD 250). This form is used when a new item of SE is introduced into the Navy system and is originated by the manufacturer and is signed by the appropriate authorized government representative for inspection and acceptance. Copies of the Material Inspection and Receiving Report (DD 250) accompany end items to the destination, where they are used for local accounting.

b. Work Request Customer Service (OPNAV 4790/36A). This form is used to request work or assistance, from an FRC overhaul point, that is beyond the activity capability. [Chapter 3](#) contains detailed information relative to the use and preparation of this form.

c. SE Rework Schedule Request (OPNAV 4790/80). This form is used to request scheduling of end items of SE that are beyond the requesting IMA/FRC capability.

d. Aeronautical Equipment Service Record (OPNAV 4790/29). The AESR is a loose-leaf log contained within a separate cover and is used for selected items of SE.

6.1.10.8.2 Additional records, forms, and documents are addressed in [Chapter 10](#), paragraph 10.17.

6.1.10.9 Inventory Management

6.1.10.9.1 Effective inventory management of SE is a key part of the NAMP. To minimize the cost of providing the SE required to maintain aircraft airborne systems, effective management and accountability is mandatory.

6.1.10.9.2 In view of the value of the SE inventory and its essentiality in support of aircraft and airborne systems readiness, the following management programs were developed:

a. AMMRL Program. The AMMRL Program is an inventory management and reporting system for SE at O-level and I-level activities. The AMMRL Program is detailed in NAVAIRINST 13650.1. Further information about the AMMRL Program and its major products, the SERMIS and the IMRL, is in [Chapter 3](#). The AMMRL Program uses MIS to record, store, and recall pre-established SE application data which constitutes SERMIS, which is used to prepare the IMRL. The IMRL is an allowance list of all SE required to maintain an activity's aircraft and airborne systems. NAVAIRINST 13650.1 contains provisions for revising SE allowances in SERMIS and in an activity's IMRL. It also establishes an inventory reporting system and inventory reporting requirements for SE. These reports provide the SECAs visibility for SE distribution and redistribution decisions, and the various inventory managers with data to justify procurement of additional SE.

b. Plant Equipment Management Application. This provides the management reports necessary for the effective inventory control of all plant equipment and SE that is required by D-level activities. These reports contain inventory, physical condition, and usage data for all plant equipment. In addition, the program serves as a basis from which COMNAVAIRSYSCOM plans and budgets for replacement of in-use equipment at the D-level.

6.1.10.10 Accountability

6.1.10.10.1 Accountable SE can be classified into one of the three major categories. Documents applicable to each of these categories contain criteria for determining items of equipment to be included. These documents also establish the reporting system to be used for each category. The first category is used primarily by maintenance managers; the other two categories are used primarily by supply managers.

6.1.10.10.2 A brief description of each category follows:

a. AMMRL Program SE. This category includes all aviation SE required by O-level and I-level activities. It specifically includes all SE on an activity's IMRL. SE within this category will be managed under NAVAIRINST 13650.1 and SECA/COMNAVAIRSYSCOM implementing instructions.

b. Plant Property SE (Classes 3/4). NAVSO Publication P1000-3 contains examples of SE to be included and excluded in these categories. It also establishes the reporting system to be used for such equipment.

c. SE in the Supply System. This category includes those items of SE, regardless of condition, listed on the inventory records of the Supply System. Normally, this category will include those items of SE that have not been included in one of the previous categories. NAVSUP Publication 485 provides detailed information relative to this category of SE.

6.1.10.11 Survey Procedures

6.1.10.11.1 The purpose of a survey is to provide a record for the administrative review of the condition of accountable SE, the cause of the condition, responsibility, and a recommendation for disposition.

6.1.10.11.2 Survey procedures shall be instituted when an accountable item of SE meets one or more of the following conditions:

- a. Beyond economical repair which resulted from damage, obsolescence, or deterioration.
- b. Acknowledged as unavailable as a result of loss or theft.

6.1.10.11.3 Accountable SE is to be surveyed using NAVSUP Publication 1, NAVSUP Publication 485, and SECA/COMNAVAIRSYSCOM instructions. The survey shall be initiated and accomplished by using the Financial Liability Investigation of Property Loss (DD 200). TEC and SERNO of the SE shall be included on the survey form.

6.1.10.11.4 Upon approval of the Financial Liability Investigation of Property Loss (DD 200), an SE Transaction Report (OPNAV 4790/64) must be submitted on all IMRL reportable items showing the loss from the activity's inventory equipment.

6.2 Work Center Supervisor

6.2.1 Introduction

6.2.1.1 If successful accomplishment of assigned tasks could be attributed to any one group of personnel, it would be the Work Center Supervisors. Diligent supervision at the work center level includes rigidly adhering to the procedures and policies established by this instruction. To ensure the accomplishment of all assigned work, maximum efficiency must be obtained and maintained in the use of manpower, material, and facilities.

NOTE: To meet the above requirement, all OMA level work center supervisors shall complete the Naval Aviation Work Center Supervisors course (Course D/E-555-0045) (Optimized) or (Course D/E-555-0036) (Legacy). IMA/FRC and MALS work center supervisors shall complete IMA/FRC and MALS Work Center Management course (Course D/E-555-0041) except IMA/FRC and MALS power plant supervisors. IMA/FRC and MALS power plant work center supervisors shall complete IMA/FRC Power Plants Work Center Supervisor course (Course D/E-555-2022).

6.2.1.2 The primary job of the Work Center Supervisor is to be responsive to the hour by hour maintenance situation. This requires constant communications between the work center, and Maintenance Control or Production Control. The Work Center Supervisor shall keep Maintenance Control or Production Control constantly notified of the following:

- a. Aircraft/parts status.
- b. Bench/test equipment status.
- c. Availability of skills (personnel).
- d. A change in status of assigned maintenance, for example, in work to AWM, or in work to AWP.
- e. Anything which may affect the ability of the work center to maintain the systems assigned.

6.2.2 Maintenance Data Systems (MDS) and Visual Information Display System Board (VIDS)

NOTE: For more extensive Work Center Supervisor MDS responsibilities refer to [Chapter 5](#). Work center supervisors having responsibilities in NALCOMIS shall refer to the applicable NALCOMIS user manual.

a. Machine Reports. The Work Center Supervisor uses the following daily and monthly MDRs on a regular basis. (For a complete listing of all MDRs available from the NDCSC, including their uses, refer to [Chapter 14](#).)

(1) MAF Copy 1 Daily Audit Report (DAR). The DAR is designed for the Work Center Supervisor to validate the previous day's MAF Copy 1 submissions. DARs should be verified daily, corrections annotated, and returned to the analyst. The analyst will resubmit the corrected report with the following day's

data. Activities using NALCOMIS shall refer to the applicable NALCOMIS user manual for details and applications of verification of data accuracy.

(2) Monthly Production Report (MDR-2). The MDR-2 is a summation, by work center, of all maintenance actions, TD compliances, and data entered in the H-Z Failed/Required Material block of the MAF.

b. Data Accuracy. Throughout the MDS, accurate documentation must be stressed. Each uncorrected erroneous document results in a loss of effectiveness of the data and of the system. The importance of complete and accurate data is further emphasized when Navy-wide use of this data is considered. Work center supervisors, with assistance of the analyst, shall strive at all times for absolute accuracy.

6.2.2.1 VIDS Boards

6.2.2.1.1 Work center VIDS boards provide the current In-Work, AWM, and AWP status for each aircraft, at O-level, or component by WUC, LRCA number, or PN, at I-level, in the applicable work center.

6.2.2.1.2 VIDS boards will be set up as shown in [Figures 6-4 through 6-8](#). The number of aircraft, equipment, and systems supported by the work center determines the number of VIDS boards needed to properly display necessary information. If work is displayed by personnel assignment, the size and numbers of VIDS boards will be governed by the number of personnel assigned. Personal history and information cards may be displayed on the work center VIDS board if desired. If displayed, they are placed on the far left side of the VIDS board if using the personnel assignment method vice the aircraft bureau/side number method. The personnel training insert may be placed on the right side of the VIDS board for display of the individual's level of training on different systems. Required SE may be listed on the bottom pocket, with SE in a DOWN status indicated by a yellow tab placed over the particular equipment.

6.2.2.1.3 Activities using NALCOMIS, refer to the applicable NALCOMIS user manual for VIDS procedures.

NOTE: It is not mandatory for VIDS boards to be set up in the exact format shown in this chapter. However, In-Work, AWM, and AWP must be visually displayed by aircraft, TEC, WUC, equipment type, LRCA number, or PN.

6.2.2.1.4 The Maintenance Control or Production Control Supervisor shall establish a schedule and ensure work centers verify their VIDS board with the Maintenance Control or Production Control VIDS board daily and resolve any conflicts.

6.2.2.1.5 Special priorities, conditions, status, or requirements can be visually displayed using signal tabs of different colors or other special marking methods.

6.2.2.1.5.1 Examples of different color signal tabs for O-level VIDS boards are as follows:

- a. Red - Not Mission Capable Supply.
- b. Blue - Partial Mission Capable Supply.
- c. Yellow - SE down.
- d. Orange - SE partially down.
- e. Green - Personnel shortage.

6.2.2.1.5.2 Examples of different color signal tabs for I-level VIDS boards are as follows:

- a. Orange - bench or equipment inoperable.
- b. Yellow - bench or equipment partially capable.
- c. Green - LRCA is pool critical.
- d. Blue - LRCA is pool zero.
- e. Red - Expeditious repair.

6.2.2.2 O-Level Work Center Procedures

6.2.2.2.1 Maintenance Control initiates the VIDS/MAF for all discrepancies found on supported aircraft or equipment and forwards Copies 1 and 5 to the work center.

6.2.2.2.2 The work center places VIDS/MAF Copies 1 and 5 on the VIDS board under AWM or In-Work, as directed by Maintenance Control.

6.2.2.2.3 After the discrepancy has been In-Work and goes to an AWP status or back to an AWM status, the work center immediately notifies Maintenance Control. MAF Copies 1 and 5 are moved to the appropriate column of the VIDS board, both in the work center and in Maintenance Control.

6.2.2.2.4 If a replacement part is required, annotate MAF Copies 1 and 5. Obtain a supply priority and project code from Maintenance Control. Obtain a document number from Material Control and place Copies 1 and 5 in the AWP column.

6.2.2.2.5 After the replacement part is received, annotate MAF Copies 1 and 5. When authorized by Maintenance Control to resume work, move Copies 1 and 5 to the In-Work column.

6.2.2.2.6 A discrepancy may go through the AWM, In-Work, and AWP process many times before being corrected. Ensure the above steps are taken each time the discrepancy status changes.

NOTE: In HM squadrons, the Aircraft Maintenance Department Maintenance Control will forward VIDS/MAFs initiated on installed AMCM equipment to the AMCM Systems Maintenance Department Maintenance Control. AMCM Maintenance Control shall then follow the procedures outlined below.

6.2.2.2.7 Maintenance Control must be in control of maintenance at all times. When all corrective actions have been completed, notify Maintenance Control and, if required, QA. QA must be notified of any inspections or check flight requirements resulting from the maintenance actions. Enter the corrective action and sign VIDS/MAF Copies 1 and 5, file Copy 5 in a temporary file, and forward Copy 1 to Maintenance Control.

6.2.2.2.8 The supervisor's signature signifies completion of the maintenance action, verification that tool control inventories were conducted at proper intervals, QA procedures were followed, and documentation is correct.

6.2.2.2.9 After verifying the Work Center Copy 5 with the VIDS/MAF Copy 1 DAR, Copy 5 may be destroyed.

6.2.2.2.10 Complete details for documentation of the MAF are in [Chapter 16](#).

6.2.2.3 I-Level Work Center Procedures

6.2.2.3.1 The work center receives MAF/WO Copies 1, 4, and 5 with the non-RFI component. Copy 5 is placed on the VIDS board adjacent to the applicable WUC, LRCA number, PN, or name and under AWM or In-Work, as directed by Production Control. Copies 1 and 4 remain with the inducted component throughout the maintenance cycle. Any status changes, for example, from In-Work to AWM, must be reported to Production Control and Copy 5 placed in the appropriate column. When a component goes to an AWP status, appropriate entries are made on Copies 1, 4, and 5 of the MAF/WO, the component is packaged and preserved per [Chapter 3](#), and sent to the AWP unit (or equivalent). MAF/WO Copies 1 and 4 go with the component. Copy 5 is moved to the AWP column of the work center VIDS board and Production Control is notified. When all corrective actions have been completed and the component is made RFI or determined to be in a BCM condition, make the required entries, including the date, on all MAF/WO copies, notify Production Control and, if required, QA. Additionally, the appropriate Material Condition Tag, Serviceable Tag - Materiel (DD 1574) ([Figure 6-9](#)) or Unserviceable (Reparable) Tag - Materiel (DD 1577-2) ([Figure 6-10](#)), will be attached to the component, inside the shipping container, and remain attached to the component until the component is used or destroyed. Copy 5 of the MAF/WO is placed in a temporary file pending verification against the daily MDR. Components BCM'd will have the TEC and JCN written in the remarks block of the attached Unserviceable (Reparable) Tag - Materiel (DD 1577-2).

6.2.2.3.2 The supervisor's signature signifies completion of the maintenance action, verification that tool control inventories were conducted at proper intervals, QA procedures were followed, and documentation is correct.

6.2.2.3.3 After verifying the Work Center Copy 5 with the VIDS/MAF Copy 1 DAR, Copy 5 may be destroyed.

6.2.2.3.4 Complete details for documentation of the MAF are in [Chapter 16](#).

6.2.2.4 Support Equipment (SE) Procedures

6.2.2.4.1 SE encompasses both shop installed SE or uninstalled SE including test sets and benches, run-up stands, diagnostic equipment, PME, and equipment used to maintain aircraft, aircraft components, or SE, such as drill presses, lathes, grinders, sewing machines, or welders. These items of SE are identified by D, G, H, and S series TECs. SEGTEs are identified by P series TECs.

6.2.2.4.2 MAF/WO flow within the Weapons Department for on equipment maintenance of armament weapons SE end items may vary because several maintenance functions, which are organized as separate entities in the FRC/IMA, may be combined organizationally into one in the Weapons Department. For example, Production Control, Work Center, and Material Control could exist as a single point in the organization.

6.2.2.5 Material Requisitioning

6.2.2.5.1 The Work Center Supervisor shall ensure work center personnel know the procedures for ordering parts to repair WRAs and SRAs.

6.2.2.5.2 When a part is required, the work center notifies Maintenance Control or Production Control and obtains the project code and supply priority from Maintenance Control or Production Control for ordering.

6.2.2.5.3 The following information is annotated by the work center in the (H-Z) Failed/Required Material blocks of the MAF/WO. The MAF/WO, Copies 1 and 4, is then forwarded to Material Control.

6.2.2.5.3.1 Manufacturer's code (CAGE code).

6.2.2.5.3.2 Part number.

6.2.2.5.3.3 Quantity required.

6.2.2.5.3.4 Project code.

6.2.2.5.3.5 Priority.

6.2.2.5.4 Upon receipt of the MAF/WO, Material Control enters a Julian date in block 45, assigns a requisition number in block 49, and requisitions the material.

6.2.2.5.5 At the I-level, if the item is not available within 24 hours, or upon notification of NIS or NC status, the WRA or SRA will be delivered to the AWP unit along with MAF/WO Copies 1 and 4. Copy 5 is retained on the work centers VIDS board under the AWP column. Production Control is notified of the status change and given the document number.

6.2.2.5.5.1 If a repairable SRA is requisitioned, the document number issued by Material Control becomes the turn-in document number on the MAF/WO initiated by the work center for the SRA. Production Control issues a suffix JCN from the original JCN and the work center packages and preserves the SRA for induction into the repair activity having cognizance.

6.2.2.5.5.2 When all parts ordered to repair the component on the original MAF/WO have been received, the component and parts are delivered to the work center.

6.2.2.5.5.3 A component may go through the AWM, In-Work, and AWP process many times before being RFI or it is determined the item must be shipped to another activity for repair. If so, ensure the above steps are taken each time the status of the component changes.

6.2.2.5.6 When the decision is made to reinduct the WRA for BCM-4 action, the following steps are taken:

- a. Notify Production Control of the status change from AWP to In-Work.
- b. Ensure all SRAs are installed and secured.
- c. Preserve for off-station processing.
- d. Complete MAF/WO documentation and notify Production Control of the status change from In-Work to BCM-4.

6.2.3 Individual Material Readiness List (IMRL)

6.2.3.1 The IMRL Program is designed to ensure required SE is available in the work center. This is done by continuously monitoring and updating a master IMRL of all SE assigned to the work center. In support of the IMRL Program, work center supervisors shall:

a. Review appropriate MIMs to compare the work center's master IMRL with the SE listed in the MIMs to ensure the proper SE is available. If this review shows a required item of SE or suitable alternate is not available or listed on the IMRL, but is a valid requirement, the Work Center Supervisor shall initiate an IMRL change request to obtain the item of SE.

b. Notify the IMRL Manager of any deletions, additions, or corrections to the IMRL to ensure the required equipment is on hand to perform assigned tasks.

c. Assist the IMRL Manager with the annual wall to wall inventory and other inventories as directed.

d. Initiate surveys on any IMRL item which is lost or no longer serviceable using [Chapter 3](#).

e. Be directly responsible for ensuring IMRL items assigned to the work center are complete, functional, and all work center personnel are completely familiar with the application and use of the equipment.

6.2.3.2 Additional information on the IMRL Program is in [Chapter 3](#) and NAVAIRINST 13650.1.

6.2.4 Quality Assurance (QA) in the Work Center

6.2.4.1 Under certain conditions, CDQARs may be assigned to work centers or production divisions. When this is the case, they function in the same capacity as QARs who are assigned to QA.

6.2.4.2 CDIs are personnel permanently assigned to a production or fleet readiness aviation maintenance personnel work center and have a collateral duty for inspecting work done by the work center. The importance of this responsibility cannot be over emphasized; therefore, careful screening of candidates for CDI designation is imperative.

6.2.4.3 Complete QAR, CDQAR, CDI, and QA details are in [Chapter 7](#).

6.2.4.4 If operating NALCOMIS OMA or IMA/FRC, it is the work center supervisor's responsibility to ensure assigned personnel have appropriate SMQs.

6.2.5 Maintenance Department/Division Safety

6.2.5.1 The Work Center Supervisor is responsible for assisting QA in implementing Maintenance Department/Division safety. The Work Center Supervisor shall:

a. Ensure Maintenance Department/Division Safety indoctrination and follow-on training is provided to personnel. Training shall include personnel responsibilities and shall be documented on the NAMP Indoctrination Training sheet ([Chapter 10](#), Figure 10.1-5) in the individual's qualification/certification record.

b. Display safety posters and maintain safety literature.

c. Report all accidents and unsafe practices in the department.

d. Conduct safety training within the work center.

e. Participate in safety surveys and safety stand downs within the activity.

f. Use and promote practices which enhance safety while instilling proper regard for safety considerations in supervised personnel.

g. Ensure personnel are currently qualified in egress/explosive system safety per [Chapter 10](#), paragraph 10.15.

h. Ensure personnel involved with handling and servicing of batteries conduct safety training in the hazards of handling batteries, for example, lifting, packaging, repairing, or charging. Requirements for lead-acid and nickel-cadmium battery safety are in NAVAIR 17-15BAD-1. Requirements for lithium battery safety are in NAVSEA S9310-AQ-SAF-010.

6.2.5.2 Complete details on Maintenance Department/Division safety are in [Chapter 7](#).

6.2.6 Preservation, Packaging, and Handling

All aeronautical material, regardless of its status, RFI or non-RFI, shall be preserved, packaged, and handled by supply and maintenance personnel in such a manner as to prevent damage or deterioration. NAVSUP Publication 700 provides preservation and packaging requirements for specific repairable components.

6.2.7 Assigning Collateral Duties

6.2.7.1 Work center supervisors, with the Division Officer's approval, shall appoint collateral duty petty officers or NCOs to handle some of the more routine but time consuming tasks assigned to the supervisor. This allows more time to devote to their primary duty, supervision. This does not relieve them of the responsibility of ensuring the tasks are properly completed.

6.2.7.2 The Work Center Supervisor shall prepare a billet description describing each collateral duty assigned to an individual. The billet description shall be signed by the individual and the Work Center Supervisor making the assignment.

6.2.8 Obtaining and Updating Publications

The Work Center Supervisor is responsible for ensuring all required publications are current and available to the work center. Requests for changes to the work centers technical publications allowance are made through the CTPL in QA.

6.2.9 Pre-Expended Bin (PEB)

6.2.9.1 High usage piece parts are available in the PEB. The Work Center Supervisor shall be familiar with PEB operations. Although stocking of PEBs at the I-level is the responsibility of ASD (Consumable Management Division for Marine Corps activities) and the Work Center Supervisor at O-level, the inputs for stocking originate at the work center. The ASD or Consumable Management Division (as applicable) will stock only those items which, among other things, show a high usage.

6.2.9.2 To ensure required parts are stocked in the PEB, the Work Center Supervisor shall:

- a. Ensure all piece parts usage is properly accounted for. Document usage in the H through Z blocks of the MAF/WO (if applicable).
- b. Ensure parts stocked in the PEB are promptly reordered by ASD per local procedures.
- c. Ensure monthly review of the work center's PEB requirements and compare them against actual PEB stocking levels.

6.2.10 Support Equipment (SE) Misuse/Abuse

6.2.10.1 The Work Center Supervisor shall ensure:

- a. SE Misuse/Abuse indoctrination and follow-on training is provided to personnel. Training shall include personnel responsibilities and shall be documented on the NAMP Indoctrination Training sheet ([Chapter 10](#), Figure 10.1-5) in the individual's qualification/certification record.
- b. All personnel issued SE licenses are familiar with equipment operating procedures and are aware of the value and importance of SE to the support of operations.

6.2.10.2 Anyone witnessing SE misuse/abuse may submit reports per [Chapter 7](#).

6.2.11 Additional Responsibilities

Additional responsibilities are identified in the NAMPSOP maintenance programs detailed in [Chapter 10](#).

6.3 Maintenance Training

6.3.1 Introduction

6.3.1.1 AMT includes both formal training and IST. Formal training is any training with an approved course curriculum. It includes A and C schools, FRCs, CENNAVAVNTECHTRA, Fleet Training Center and FASOTRAGRU LANT/PAC courses, and may or may not produce a NEC or MOS. Maintenance personnel receive specific weapon system training conducted by CENNAVAVNTECHTRAUs/CNATTMARUs using approved syllabi required by OPNAVINST 1540.2. Courses are provided in familiarization, operation, and maintenance of the specific system or equipment required to be maintained. Practical training is coordinated to reinforce classroom instruction.

6.3.1.2 Training tracks depict all elements of the total requirement. The CENNAVAVNTECHTRAU/CNATTMARU manages the progress of the individual trainee through the training track. Training tracks are divided into phases:

- a. Phase I – Introduction (CENNAVAVNTECHTRA Validate)
- b. Phase II – CENNAVAVNTECHTRAU/CNATTMARU Courses.
- c. Phase III – Enlisted Aircrew Flight Training. (To minimize time in the pipeline, only phases II and III are required to be sequential).

6.3.1.3 Funding.

6.3.1.3.1 Enroute training is defined as training received prior to reporting to one's ultimate duty station/activity and is primarily funded by BUPERS. Aviation maintenance training, other than enroute, that requires expenditure of TAD and travel funds must be requested per type/functional commander directives and the CANTRAC. Initial training for new acquisition or equipment modification resulting in major configuration is funded by COMNAVAIRSYSCOM. TAD and travel cost may be funded by the ACC/TYCOM or BUPERS with modifications to TAD requested via the appropriate chain of command.

6.3.1.3.2 Marine Corps aviation maintenance training, which requires expenditures of TAD and travel funds, is requested per CMC/CG MCCDC directives and the CANTRAC. Initial training, including associated TAD and travel costs may be funded by Headquarters, U.S. Marine Corps and should be requested prior to obligation of operational target funds.

6.3.1.4 The AMT Program uses training model managers to provide systematic review and evaluation of all phases of instruction for assigned weapon systems. The model manager collects and evaluates all proposed changes to training requirements, curricula, and syllabi, coordinating with appropriate trainer and user activities and forwards recommended changes to CNO via CENNAVAVNTECHTRA.

6.3.1.5 IST is training conducted by fleet activities to complement formal training and increase professional safety, technical knowledge and proficiency. Lectures, IMI, Videotapes/films, PQS, required reading, and OJT are integral components and must be coordinated to satisfy each individual persons activities particular requirements.

6.3.1.6 AMTCS is a concept that uses technology infusion to standardize tracking, monitoring, and management of all training (formal and IST) into an integrated, cohesive "cradle-to-grave" system.

6.3.1.7 ASM is the software application module that supports AMTCS in the schoolhouse and the fleet. It is a software application designed to:

- a. Identify individual/group job requirements using task list.
- b. Automatically track OJT through NALCOMIS.
- c. Document qualifications/certifications progress with Electronic/Certification Record.
- d. Test knowledge through a Test and Evaluation module.
- e. Provide feedback to assist management/monitoring of the system. Refer to [paragraph 6.3.8](#) for specific ASM purpose, policy, and responsibilities.

NOTE: Organizations implemented with ASM, paper OJT syllabus is no longer required.

6.3.1.8 The ITSS/MATMEP is a standardized, documental, level progressive, technical skills training management and evaluation program for Marine Corps enlisted aviation MOSs. MATMEP identifies tasks, skills, and knowledge requirements of each MOS. It incorporates an ASM test so a complete evaluation can be made of the individuals “hands-on” performance capability and technical knowledge. Detailed information regarding ITSS/MATMEP procedures, policy, and responsibilities can be found in MCO P4790.20.

6.3.1.9 The Reserve job qualifications requirement program creates and implements standardize OJT syllabi satisfying training requirements for OJT awardable NECs for aviation selected reservists as defined in NAVPERS 18068F, Volume II.

6.3.1.10 The PQS program is a compilation of written requirements for a specific watch station or unit team member. PQS is in the format of specification guide and contains questions pertaining to a specific task. Further detailed information regarding PQS procedures can be found in the NAVEDTRA 43100-1G and OPNAVINST 3500.34.

6.3.2 Training Policy

6.3.2.1 Formal Training is any training with an approved course curriculum. It includes A and C school, FRCs, CENNAVAVNTECHTRAU, Fleet Training Center, and FASOTRAGRU LANT/PAC courses, and may or may not produce a NEC or MOS. Maintenance personnel receive specific weapon system training conducted by CENNAVAVNTECHTRAUs and CNATTMRUs using approved syllabi required by OPNAVINST 1540.2.

6.3.2.2 The Maintenance Training Program is designed to ensure basic, intermediate, and advanced levels of training are provided to all maintenance personnel to support existing, planned, and future weapon system acquisitions. Additionally, it is applicable to equipment in support of aviation meteorological and photographic equipment, air launched weapons, missile targets, and aeronautical equipment. Training is provided to all DON personnel to operate, maintain, and support aircraft weapon systems and related equipment.

NOTE: No training course should impact current operational commitments, unless specified by higher authority.

6.3.3 Command Relationships

Command relationships are based on lines of authority existing between various echelons as well as the administrative and support responsibilities assigned to different activities. Multiple command echelons are involved in training aviation maintenance personnel and liaison is maintained across all levels of command.

Figure 6-11 shows command lines (solid) and administrative, support, and liaison lines (broken) to assist in understanding command relationships.

6.3.4 Command Responsibilities

6.3.4.1 The CNO is responsible for the training of naval personnel and for directing the various commands and offices in providing resources required to implement the training program.

6.3.4.1.1 OPNAV (N7) Director of Navy Training/NETC shall:

- a. Develop the Navy's overall policy standards and procedures for training and provide curriculum development standards and training for naval personnel pertaining to curriculum development and formal classroom instruction.
- b. Provide standards for review and acceptance of all new curricular products resulting from the weapons system acquisition process (including training devices) for use in NETC schools.
- c. Provide necessary planning, programming, and budgeting for manpower and training resources, including facilities, to support assigned training requirements.
- d. Coordinate and direct recruit and specialized training.
- e. Ensure training provided by Technical Training Centers, CENNAVAVNTECHTRAU/CNATTMARU and correspondence courses is responsive to Fleet Commanders, ACCs/TYCOMs and the Naval Air Force Reserve.

6.3.4.1.2 NPDC shall be responsible for providing necessary planning, programming and budgeting for manpower and training resources to support fleet training requirements.

6.3.4.1.3 CENNAVAVNTECHTRA shall be responsible for:

- a. The establishment of policy and priorities for aviation training and the development of aviation training plans to meet fleet requirements.
- b. The supervision and direction of aviation training, including formal technical "A" school training: airman apprentices school; the programming of aviation training resource requirements, including training manpower; and approval or disapproval of CENNAVAVNTECHTRAU/CNATTMARU course establishment, disestablishment and revision.
- c. The establishment of NATT COA at the O-6 level and chaired by the CO of CENNAVAVNTECHTRA. This COA is responsible for the development of long-term strategic plans for aviation technical training.
- d. The establishment of a Training Continuum Management Board, at the middle management level and chaired by the Executive Director of CENNAVAVNTECHTRA. This Training Continuum Management Board is responsible for aviation maintenance training issues as assigned by the NATT COA.

6.3.4.2 CMC is responsible for the training of Marine Corps personnel and providing resources required to support Marine Corps training at CNATTMARU and to implement the training program.

6.3.4.2.1 CG MCCDC shall coordinate Marine Corps aviation training requirements and represent CMC on all training matters.

6.3.4.2.2 The Enlisted Aviation Maintenance Trainee Management Unit shall:

a. Supervise and coordinate aviation MOS producing technical and management training programs for Marine Corps personnel.

b. Supervise/exercise quota control authority for all training conducted at Marine Corps training sites and CNATTMARU's requested by and for cognizant Navy, Marine Corps, foreign national, and other personnel as necessary. (See CANTRAC Volume I for specific details).

6.3.4.3 The Director, Air Warfare Division (N78), is responsible for the establishment of policy, requirements and priorities for aviation training and development of aviation training plans.

6.3.4.4 BUPERS shall:

a. Participate in personnel and training planning, in the development and review of NTSPs, and in meeting personnel inventory and skills requirements to support introduction of new acquisitions.

b. Perform occupational task analysis as specified by CNO in support of new systems and aviation training requirements.

c. Manage the aviation community ratings and develop the annual "A" and "C" school training plans (OPNAVINST 1500.76).

d. Participate in the HPRR in an advisory position.

6.3.4.5 COMNAVAIRSYSCOM shall:

a. Perform research, design development, test, acquisition, and logistic support of all aviation procurements relating to Navy and Marine Corps aircraft, missiles, targets, associated material, and equipment.

b. Initiate development of recommended NTSPs for new weapon systems and components requiring establishment of in-house Navy training per OPNAVINST 1500.76. In concert with CENNAVAVN-TECHTRA and the fleet, periodically review existing NTSPs for currentness and adequacy.

c. Initiate action for development, procurement, installation, maintenance, and repair of equipment required in support of aviation training programs.

d. Initiate appropriate FEA and use instructional system design process (as required) for training system development/revisions.

e. Review existing training programs and curricula for technical adequacy and availability of suitable training equipment.

f. Provide for factory and other specialized contract training and arrange for interservice training where required.

g. Provide maintenance and logistics support of maintenance trainers, including dedicated aviation SE, required by CENNAVAVNTECHTRAU/CNATTMARU departments to conduct PJT.

h. Plan, program, and budget for all training logistics items related to new acquisitions and major modifications.

i. Provide recommendations to improve aviation maintenance training and maintain and develop NTSPs. Conduct analysis (as required) to determine alternatives for improving training effectiveness and efficiencies.

6.3.4.6 COMNAVAIRFOR shall:

a. Supervise, coordinate, and direct internal aviation technical training and training management programs for assigned squadrons and units.

b. Monitor quota control assignment for all training conducted at Navy CENNAVAVN-TECHTRAUs/CNATTMARUs that is requested by and for cognizant Navy, Marine Corps, foreign national and other personnel as necessary. (CANTRAC Vol I for specific details.)

c. Assist, as applicable, in the efforts of the CENNAVAVNTECHTRAU in administering the AMT Program.

d. Conduct reviews of new/revised training curricula (as applicable).

e. Establish, coordinate, and direct administration of in-service training via ASM.

f. Provide coordination and assistance to CENNAVAVNTECHTRA in the management of ASM.

g. Coordinate formal training of enlisted maintenance personnel conducted by FRCs.

h. Provide on-site training and management assistance to all Navy and Marine Corps aviation units through the AMMTs.

i. Direct the FASOTRAGRU and supervise quota control of all maintenance administration and management courses provided by FASOTRAGRU Atlantic/Pacific.

6.3.4.7 NAVSAFECEN shall provide technical assistance through reviews of training equipment, curricula, and training devices for safety related issues where inadequate training could result in excessive risk.

6.3.5 General Training

6.3.5.1 This section defines the training sequence for aviation maintenance personnel. It covers the required training for specific job requirements on aeronautical weapon systems and associated SE.

6.3.5.2 Maintenance training is a continuum throughout an individual's career which begins with entry into service and continues through various training courses, including PJT where feasible, with eventual assignment to a particular job. The technical knowledge and skills required to perform in the assigned job determine course requirements.

6.3.5.3 Training is accomplished in a sequential process with basic courses providing requisites for following courses. Most aviation personnel receive initial training enroute to their first duty station. Those who do not attend Class "A" school receive airman apprentice training following completion of recruit training and report directly to their ultimate duty station.

6.3.5.4 Formal classroom training is enhanced by the practical application of learned skills in a structured environment. In the AMT Program, the CENNAVAVNTECHTRAU/CNATTMARU provides specific formal classroom and laboratory instruction as well as reinforcement on specific aeronautical weapon systems or equipment.

6.3.5.5 Close liaison is established between the CENNAVAVNTECHTRAU training coordinator and the ultimate duty station for enroute trainees to ensure the correct training is given for the billet to be filled. Standard billet training requirements are provided by the CENNAVAVNTECHTRAU, with revised or exceptional requirements met on an as needed basis. The CENNAVAVNTECHTRAU training coordinator reviews the BUPERS Orders 1326 Standard Transfer Directive and sends a report of planned training to the member's ultimate duty station. The squadron/unit reviews the report to ensure planned training is consistent with requirements and the unit's AMD. Concurrence/recommended changes are then immediately provided to the CENNAVAVNTECHTRAU, ensuring a carefully controlled training program, tailored to meet fleet requirements.

6.3.6 Navy Training Schools

6.3.6.1 The NETC conducts training for officers and enlisted personnel in basic, technical, and specialized areas as follows:

- a. Class A - Basic knowledge/skills required for entry level performance. NEC or MOS not normally awarded.
- b. Class C - Advanced knowledge/skills required to fill a billet coded with an NEC/MOS. Awards NEC/MOS.
- c. Class D - Professional CNO mandated or nonpipeline refresher training. NEC not normally awarded.
- d. Class F - Individual functional skill training required by fleet or ACC/TYCOM. No NEC awarded.
- e. Class G - Segment course of an NEC/MOS producing pipeline. Does not, by itself, award an NEC/MOS and may be attended outside the entire pipeline.
- f. Class R - Training upon initial enlistment or induction which provides general indoctrination and prepares the recruit for early adjustment to military life by providing skill and knowledge in basic military subjects.
- g. Class T - Team training to fleet personnel, officers and enlisted, enroute to duty as members of ship's company. No NEC is awarded.

6.3.6.2 CENNAVAVNTECHTRA. This command, with its units and detachments under NPDC, provides training for officers and enlisted personnel in the operation, maintenance, and repair of aeronautical weapon systems and associated equipment using lectures/computer aided instruction/maintenance trainers/PJT. These trainers are instructional units which provide training support for a weapon system, specific equipment, groups of related equipment, or specialized techniques. Courses covering operational and tactical employment of specific equipment and systems and in aviation maintenance administration and management. This training is provided through the CENNAVAVNTECHTRAU/CNATTMARU.

6.3.6.2.1 NITRAS is an automated system designed to be responsive to demands for training information by NETC and other commands. Additionally, it provides direct supportive data for BUPERS, and the Navy Recruiting Command. NITRAS files provide functional commanders and the training activities with an automated capability to manage and support the Navy training effort. NETC is responsible for management and operation of NITRAS, per CNETINST 1510.1 All Navy training, with the exception of Phase I SE training for license, regardless of location and basis (formal or contractor) must be recorded in NITRAS per OPNAVINST 1510.10.

6.3.6.2.2 STASS is a computerized system used to facilitate management of the CENNAVAVNTECHTRAU/CNATTMARU training program. STASS provides student scheduling into various courses,

generates student reports, performs diagnostic testing and grading and maintains individual and unit statistical data. Test generation and administration will migrate to ASM test and evaluation upon implementation.

6.3.6.3 FASOTRAGRU. This group, under ACC/TYCOM direction, trains fleet personnel in courses covering operational and tactical employment of specific equipment/systems and in aviation maintenance administration and management.

6.3.6.4 Fleet Anti-submarine Warfare Training Center. This school instructs fleet personnel in operational and tactical employment as well as maintenance of specific equipment and systems.

6.3.6.5 FRCs. FRCs conduct courses required by fleet and shore activities. Most courses are of short duration and emphasize troubleshooting, alignment, specialized training, and bench work on various accessories and components.

6.3.6.6 Aviation Maintenance Officer (AMO) Schools

6.3.6.6.1 Naval Aviation Maintenance Program Indoctrination course (Course CIN C-4D-2012). A course of instruction for newly commissioned or newly designated Navy and Marine Corps aviation ground officers. The course provides the essential prerequisites for initial assignment to a maintenance billet. Topics include basic qualifications in management principles and techniques, general aircraft systems and equipment, aviation supply fundamentals, maintenance and material control procedures, aviation safety records and reports, information systems and data processing principles, NDI familiarization, and the fundamental elements of the NAMP.

6.3.6.6.2 Naval Aviation Maintenance Program Management course (Course CIN C-4D-2013). This course provides instruction for officers and senior enlisted (E-7 and above) of the Navy and Marine Corps with NAMP information and knowledge of the managerial responsibilities required to direct an aircraft maintenance activity, while reinforcing the use of publications and directives applicable to aviation maintenance management.

6.3.6.7 Aviation Ordnance Officer Career Progression Training. This training is designed to provide career progression training to establish a training path for aviation ordnance officers and is available to senior enlisted Aviation Ordnancemen (Navy E-7 through E-9, and Marine Corps E-8 through E-9 MOS 6591). Training is conducted in three levels, commencing immediately following officer accession and culminating with specialized training commensurate with the increased levels of responsibility and authority associated with career progression.

6.3.6.7.1 Aviation Ordnance Officer Career Progression Level 1 course (Course Q-4E-0010). This course provides training for newly designated aviation ordnance officers and senior enlisted. The course provides the essential prerequisites for initial assignment to an aviation ordnance officer billet. Topics include introduction to NOMMP, approved basic stock level of ammunition, ammunition accounting, ordnance administration, air launched missiles, conventional ordnance, aircraft armament equipment, AWSE, aircraft guns, UAVs, safety, weapons handling, and storage afloat and ashore.

6.3.6.7.2 Aviation Ordnance Officer Career Progression Training Level 2 course (Course Q-4E-0011). This course provides mid-level training for all aviation ordnance officers in the management of weapons in IMA/FRC, engineering and weapons departments, ordnance/maintenance/supply relationships, ordnance operations, inspections and investigations, and weapons safety programs.

6.3.6.7.3 Aviation Ordnance Officer Career Progression Training Level 3 course (Course Q-4E-0012). This course provides top-level training for senior aviation ordnance limited duty and warrant officers in non-

nuclear expendable ordnance management responsibilities, ordnance fair-share distribution policy, weapons development and relationships, and the structure and functions of echelons one and two of the DON.

6.3.6.8 JASMMM. This course is provided for senior enlisted, officer, and civilian personnel in supply, maintenance, and operating communities. The primary goal is to foster a spirit of cooperation between Maintenance and Supply personnel while developing and reinforcing aviation support related supervisory, technical, and management skills. The course is offered by the Navy Supply Corps School, Athens, GA.

6.3.7 Interservice Training

6.3.7.1 DOD and other services conduct schools and courses available to Navy personnel. When training offered within the DOD is sufficiently compatible, it shall be used in lieu of initial training per OPNAVINST 1500.27. If no other source of training is available, requests for initial training shall be submitted to the ACC/TYCOM for approval, since funding is required. If no such training is currently available, the ACC/TYCOM shall review and consolidate requests and forward to COMNAVAIRSYSCOM for contract negotiation as required. Requests for interservice training shall be forwarded to CENNAVAVNTECHTRA via the ACC/TYCOM with a copy to COMNAVAIRSYSCOM.

6.3.7.2 The Interservice Training Review Organization is an informal agency within DOD designed to improve the effectiveness and efficiency of education and training through cooperative efforts among the services. It is directed through a structure of boards, committees, subcommittees, and task groups with representatives from each military service. The regulatory foundation for the Interservice Training Review process is a joint regulation, OPNAVINST 1500.27, entitled Schools: Interservice Training. The joint regulation established policies, responsibilities, and procedures for the review of DOD education and training activities to improve their effectiveness and efficiency. This responsibility also applies to consolidated and collocated courses, interservice resident and nonresident training, quota courses, and to the exchange and development of education and training resources, research data, and training technology.

6.3.7.3 The Training and Education Committee is responsible for procedures, studies, and projects in the areas of skills training, education, and flight training. Under the Training and Education Committee, the Skill Training Subcommittee has, as its purpose, the examination of selected officer and enlisted occupational courses/disciplines for consolidation or collocation potential. It is responsible for curriculum design and development, restructuring/standardization, course combinations, and the documentation and completion of all three phases of study leading to joint service consolidation or collocation. The phases of study consist of curriculum/facilities review, cost analysis, and implementation plan. The study will terminate or proceed to the next phase depending on each phase's outcome.

6.3.7.4 Contractor plant services and contractor field services training. This training is provided by COMNAVAIRSYSCOM on new weapon systems being introduced to the fleet. A nucleus of personnel is trained by the contractor either at the contractor's facility or on site. The type of personnel ordered to this specialized training program must be of the highest caliber and capable of instructing other personnel upon completion of the training.

6.3.8 Aviation Maintenance Training Continuum System (AMTCS) - Software Modules

6.3.8.1 Purpose. ASM is an unclassified training management tool that supports AMTCS in the schoolhouse and the fleet as depicted in [Figure 6-12](#). It is a software application designed for AMTCS to identify job task requirements, assist in determining proficiencies, document qualification/certifications, track completed training, and test the knowledge of all Navy and Marine Corps aviation maintenance personnel. It also provides feedback to management.

6.3.8.2 Policy. OPNAV, the Director of Air Warfare (N78), as program sponsor, shall provide overall program direction. The following policies are applicable:

- a. ASM, a training management system, shall be implemented as directed by TCMB using inputs from ACCs/TYCOMs.
- b. Life-cycle support for the application program and associated hardware/software will be provided through COMNAVAIRSYSCOM (PMA 205).
- c. Standardized procedures will be developed by OPNAV (N782) in cooperation with the ACC/TYCOM to the maximum extent consistent with organizational requirements and capabilities.
- d. Final skill qualification remains with the activity. Minimum skill certification requirements will be established by the appropriate Wing Commander to meet safety requirements.

6.3.8.3 Responsibilities

6.3.8.3.1 OPNAV, the Director of Air Warfare (N78) shall:

- a. Establish policy and exercise overall support for the AMTCS Software Modules.
- b. Program aviation training resources requirements.
- c. Identify and plan manpower requirements.

6.3.8.3.2 COMNAVAIRSYSCOM, through the Aviation Training Systems Program Office (PMA 205), shall:

- a. Provide program management and oversight for OPNAV sponsored training activities.
- b. Develop, implement, and support ASM software/hardware requirements and training materials.
- c. Provide technical assistance, advice, and liaison as requested or required.
- d. Perform annual assessments of ASM hardware/software.
- e. Coordinate through CENNAVAVNTECHTRA to ensure compliance with ILE guidelines and educational requirements for IMI standards and conventions pertaining to all naval aviation training programs.
- f. Maintain, distribute, and provide life-cycle support for each legacy weapon system MTL data bank.

6.3.8.3.3 ACCs/TYCOMs shall:

- a. Monitor implementation and (if applicable) issue directives, provide guidance, and ensure that adequate planning and support are in place for the ASM fielding.
- b. Identify ASM software/hardware functional requirements and data usage.
- c. Establish, coordinate, and direct administration of ASM implementation to ensure clear definition of lower echelon requirements.
- d. Provide coordination and assistance to CENNAVAVNTECHTRA in the management of the MTL data bank development to ensure clear definition of training requirements.
- e. Maintain liaison for planning, development, maintenance, and validation of MTL materials.

f. In conjunction with CENNAVAVNTECHTRA, standardize and coordinate functional parameters, report requirements, and data usage of ASM.

g. Ensure training support materials for ASM administrators/users are available.

6.3.8.3.4 CENNAVAVNTECHTRA shall:

a. In conjunction with ACCs/TYCOMs, standardize and coordinate ASM software/hardware functional parameters, report requirements, and data usage.

b. Develop, maintain, distribute, and provide life-cycle support for each weapon system MTL data bank.

c. Maintain close liaison and coordination between ACC/TYCOM and Wing AMTCS coordinators.

6.3.9 Aviation Maintenance Management Teams (AMMT)

The AMMTs are managed by the ACCs/TYCOMs to evaluate performance and to advise, train, and assist fleet activities in improving their performance in aviation maintenance procedures, logistics support, and personnel usage. The teams visit both Navy and Marine Corps activities and are available to assist with special problems as required.

6.3.10 Engineering and Technical Services (ETS)

6.3.10.1 ETS consist of information, instruction, and training provided to DOD personnel ashore and afloat in the installation, maintenance, repair, and operation of aircraft weapons systems and related SE. NAVAIRWARCENWPNDIV Point Mugu, CA, provides similar ETS for aviation ordnance personnel. Services are planned, managed, and provided by NATEC (Code 6.7) San Diego, CA. Services are performed by NETS personnel, who are organic Navy personnel (military and civilian), and CETS, who are commercial or industrial contractor personnel. NATEC detachments located at various worldwide sites can provide information on NATEC technical expertise available to support user requirements.

6.3.10.2 ETS is a logistics element required to:

a. Accomplish the initial transfer of knowledge from equipment manufacturer to organic Navy during equipment introduction.

b. Provide OJT and technical assistance.

c. Provide assistance for resolution of unusual or difficult maintenance problems.

d. Maintain technical information channels and liaison between the manufacturer and the Navy.

6.3.10.3 ETS will be used primarily to complement CENNAVAVNTECHTRAU/CNATTMARU and shore-based turnaround training. They are not intended to be a corrective measure for inadequate ILS planning, funding, or execution. Use of ETS aboard ship during routine CV and CVN work-up training periods and short term assists is an ACC/TYCOM management option. Normally, ETS will not be embarked for extended deployment.

6.3.10.4 In those instances where actual, unavoidable logistics or personnel training deficiencies exist, ACCs/TYCOMs may continue to deploy ETS on a limited basis. Such support will be handled on a case by case basis where that option is the most logical cost effective alternative. Use will be closely controlled, limited to finite periods, and kept to an absolute and justifiable minimum. In each case, the logistic

deficiency or training objective necessitating the use of embarked ETS must be identified to the ACC/TYCOM and NATEC (Code 6.7) by the requesting activity.

6.3.10.5 Funding for ETS support is a COMNAVAIRSYSCOM responsibility. It requires extensive planning, programming, and budgeting actions be taken early in the acquisition process for new aircraft and weapon systems and for major upgrades or replacements. Initial planning, programming, and budgeting for ETS will be coordinated with the COMNAVAIRSYSCOM APML during the demonstration/validation phase. During full scale development and full rate production phases, ETS planning, programming, and budgeting takes place through the ILS management team process. CETS will be funded by the appropriate COMNAVAIRSYSCOM APML using procurement funds for a period not to exceed one year after acceptance of the first production ACC/unit of the model being produced. After this time, ETS requirements must be funded by O&MN, Navy Reserve funds under the management control of NATEC (Code 6.7).

6.3.10.6 NETS are the primary source of ETS for equipment operators and maintainers. CETS are authorized only when the required support is not available from NETS resources.

6.3.10.6.1 NETS duties and responsibilities include but are not limited to:

- a. Provide technical advice, assistance, and training on the installation, maintenance, repair, and operation of weapon systems and equipment.
- b. Evaluate and advise on technical deficiencies in the maintenance and operation of weapon systems or equipment and recommend methods to eliminate these deficiencies.
- c. Investigate and advise on accidents and incidents due to systems or equipment failures. Train personnel in accident prevention from equipment failure/poor maintenance practices.
- d. Maintain close liaison with ISSCs, COMNAVAIRSYSCOM, and contractor personnel and provide technical advice/assistance to resolve maintenance problems/design deficiencies.
- e. Provide technical advice and training to maintenance personnel in resolving difficult maintenance problems.
- f. Relay training and equipment deficiencies to the MO and propose solutions for correction.
- g. Prepare and submit technical reports as required.
- h. Assist in the installation of aircraft equipment, shipboard and ashore, and provide OJT to appropriate military and civilian personnel.
- i. Perform emergency maintenance (direct assistance) on equipment to resolve technically difficult problems when temporary skill or manning shortages prevent accomplishment by assigned personnel. NETS will not perform routine maintenance except under unusual circumstances and never for prolonged periods of time.
- j. Devise local training course outlines, lesson plans, and written examinations, including information in identifying needed training programs and plans.
- k. Provide technical advice and assistance in connection with operational evaluation/technical evaluation.
- l. Participate in technical publication reviews, ILS Management Teams, MTRRs, and NTSP conferences.

- m. Serve as a supervisor of NETS when assigned to a working supervisory NETS position.

6.3.10.6.2 NETS personnel will not routinely be used for:

- a. Inspections, installation of engineering changes, evaluation of new equipment performance, or arranging for shipment of defective ACC/units.
- b. Performance of maintenance, except as defined in paragraphs 6.3.10.6.1(h) and 6.3.10.6.1(i) above.
- c. Performance of tasks considered organic to the user activity, for example, nonspecialized training, standing duties, and performing military administrative functions.

6.3.10.6.3 Civilian NETS positions are designated as Emergency-Essential per DOD Directive 1404.10. Civilians assigned to NETS positions shall be governed by and required to comply with provisions of this directive.

6.3.10.6.4 CETS duties and responsibilities include:

- a. Provide on-site classroom and OJT to DOD military and civilian personnel on maintenance and operation techniques pertaining to adjustment, calibration, troubleshooting, bench check, routine maintenance, inspection, and repair of the assigned system/equipment, including control, support, and test equipment. This training is for all maintenance related personnel, including NETS (as required).
- b. Provide information and instruction on the use of associated special tools and test equipment.
- c. Devise local training course outlines, lesson plans, and written examinations, including information in identifying needed training programs and plans.
- d. Emphasize all safety precautions.
- e. Train and demonstrate the best methods of installing modifications, retrofit kits, and other components.
- f. Provide technical information and training to resolve difficult and unusual maintenance problems.
- g. Provide analysis of maintenance difficulties and inform as to changes to maintenance, inspection, and training programs designed to improve the quality of maintenance.
- h. Provide information related to maintenance and operational procedures/problems, available in the contractor's plant, to DOD military and civilian personnel.
- i. Provide a liaison through which information related to installation kit checkout procedures and related data problems can be quickly relayed to the plant for correction and resolution.
- j. Provide information and assistance in connection with accident investigations.
- k. Perform emergency maintenance (direct assistance) on equipment to resolve technically difficult problems when temporary skill or manning shortages prevent accomplishment by assigned personnel. CETS will not perform routine maintenance except under unusual circumstances and never for prolonged periods of time.

NOTE: Only NATEC (Code 6.7) has the authority to contract for CETS.

6.3.10.6.5 CETS personnel shall not:

- a. Be appointed, employed, or placed under the supervision or direction of Navy personnel.
- b. Be placed in a policy making position.
- c. Be placed in a position of command, supervision, administration, or control over military or civilian personnel or personnel of another contractor.
- d. Be used to avoid manpower ceilings or other personnel rules and regulations of OPM, DOD, or DON.
- e. Become a part of the government organization or use government facilities for normal day-to-day CETS activities with the exception of shipboard deployments and field sites.
- f. Perform direct maintenance, except as noted in paragraph 6.3.10.6.4k above.
- g. Represent any government activity at meetings or conferences. (This does not prevent CETS from serving as a technical advisor to the activity representative, but NETS will be used for this function when available.)
- h. Perform tasks that are considered organic to the user activity, for example, nonspecialized training, standing duties, and performing military administrative functions.

6.3.10.6.6 Initial ETS requirements will be included in appropriate ILS and phased support plans. From these, long-term programmatic ETS support plans will be developed by NATEC (Code 6.7) in conjunction with individual fleet customers, ACCs/TYCOMs, and APMLs. These programmatic plans will document requirements by site/billet and will be used to justify budget requests and allocate available resources. Additional ETS guidance and information is in NATECINST 5400.1 and other ACC/TYCOM directives (as applicable).

NOTE: For ETS support of airborne weapons release and control, stores management systems, expendable targets, nonrecoverable UAVs, and related equipment refer to OPNAVINST 8000.16.

6.3.10.6.7 Contractor maintenance services, including logistic support representative services, are procured through NATEC (Code 6.7) but do not fall under the definition of ETS. Policies and responsibilities concerning other contractor maintenance are in [Chapter 11](#).

6.3.11 Navy Training System Plans (NTSP)

6.3.11.1 The NTSP is the official statement of billets, personnel, and training input and resource requirements to support the introduction and operational use of aircraft, systems, subsystems, equipments, and other developments, including nonhardware related developments. The NTSP assigns responsibilities for the planning, programming, and implementing actions necessary to provide required support to ensure:

- a. Coordination of billets, personnel, military construction, training support, and training planning concurrently with hardware development and production.
- b. Efficient and adequate training programs phased with the introduction of aircraft, systems, subsystems, equipment, or other developments or modifications to the existing systems or equipment.
- c. Support of the policies established for system acquisition within the DON.

6.3.11.2 The NTSP is a COMNAVAIRSYSCOM developed document which lists the multiple elements required for life cycle support of new aircraft, systems, subsystems, or equipment. Development, approval, and implementation procedures are in OPNAVINST 1500.76.

6.3.12 Technical Audits

6.3.12.1 Purpose. The objective of technical audits is to improve training. Training data is reviewed for technical adequacy, applicability, accuracy, redundancy, and compatibility with student background. Technical audits are conducted on a continuing basis to ensure supporting data and equipments are current and representative of what is needed and currently used by the fleet.

6.3.12.2 Responsibilities

6.3.12.2.1 COMNAVAIRSYSCOM is responsible for providing policy direction, exercising control and coordination of the Training Audit Program, assigning audit team leaders, monitoring training data review and technical audit operations, and for serving as the official point of contact for technical audits and reviews of aviation specialized training schools.

6.3.12.2.2 Other system commanders and ACCs/TYCOMs are responsible for supporting the training audits at schools with courses under their cognizance, providing audit team leaders/members as requested, and for arranging fleet participation in audits as required.

6.3.13 Human Performance Requirements Review (HPRR)

6.3.13.1 Purpose. The HPRR, CENNAVAVNTECHTRA sponsored review of designated weapon systems training courses, ensures the fleet has the best trained maintenance personnel possible. To accomplish this, HPRRs shall:

- a. Identify any performance issues, to determine causal factors and corrective solutions.
- b. Program corrective action.
- c. This will be accomplished/verified during the annual course review.
- d. Provide a communication bridge for community participants to generate an exchange of ideas.

6.3.13.2 Policy. OPNAVINST 1540.2 outlines the AMT Program and specifies CNO (N17) policy in aviation maintenance training at both the O-level and I-level. The HPRR process ensures compliance with CNO policy, including the following basic elements:

- a. Development of structured training tracks to promote standardization between fleets to the maximum extent possible.
- b. Formal training shall be limited to subject matter taught most effectively and economically in a classroom/CBT setting.
- c. PJT will be used to reinforce classroom training/IMI, where practical and economically viable.
- d. CENNAVAVNTECHTRAU/CNATTMARU training shall provide the knowledge and skill required of specific tasks the trainee will be required to perform.

6.3.13.3 Procedures. The HPRR brings all elements of the training process together. Commands represented on the policy committee include CNO, CMC, NETC, COMNAVAIRFOR, CG MCCDC, and CNAFR. Advisory committee membership includes CNET, BUPERS, COMNAVAIRSYSCOM, (AIR-

5.0D, AIR-6.0B1, and PMA 205), COMNAVAIRSYSCOM ACC/TYCOM, CENNAVAVNTECHTRAU, Type Wings, MAWs, and the Enlisted Aviation Maintenance Trainee Management Unit. Policy and advisory committees are primarily concerned with maintenance and training policy. Working committee membership is composed of fleet subject matter experts, who must be familiar with the technical aspects of the weapon system to be reviewed. Subject matter experts must also be aware of current maintenance problems and their relationship to the training process.

6.3.13.3.1 Pre-HPRR. When an HPRR conference is announced, respective ACCs/TYCOMs should obtain inputs from all activities. The preliminary inputs should target scope, objectives, procedures, and reports. Additionally, information concerning training tracks and applicable courses will be provided. Participants in the preliminary should attend the CENNAVAVNTECHTRA HPRR conference and be selected as applicable.

6.3.13.3.2 Preparation. HPRR process participants should be prepared to perform the following at the CENNAVAVNTECHTRA HPRR conference:

- a. Review existing training tracks and modify as required.
- b. Establish new training tracks as required.
- c. Recommend revisions, deletions, or development of new NEC/MOSs (as required).
- d. Identify and describe new performance requirements.
- e. Identify problems and provide recommendations for corrective action relative to training deficiencies outside the CENNAVAVNTECHTRAU/CNATTMARU which has an impact on fleet readiness.

6.3.13.4 Technical Audit. An HPRR fulfills the technical audit requirements for CENNAVAVNTECHTRAU/CNATTMARU training.

6.3.14 Training Publications

6.3.14.1 Navy Enlisted Occupational Standards. The Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards (NAVPERS 18068F Volume II) defines rates and ratings by describing the Navy's requirements and identifies additional skills required in specific billets which are supplemental to rating skill requirements. The manual consists of two sections as follows:

- a. Section I - Contains occupational standards which express requirements for skills as determined by manpower management. These standards form the basis for personnel training and distribution.
- b. Section II - Contains NECs which identify skills requiring more specific identification than is provided by rates and ratings and which are not rating wide requirements.

6.3.14.2 CANTRAC. NAVEDTRA 10500 contains information on schools and courses offered through Navy training commands. CANTRAC is available via the web at <https://cetarsweb.cnet.navy.mil>.

6.3.14.2.1 NAVEDTRA 10500 provides a consolidated and computerized catalog displaying courses available.

6.3.14.2.2 The CANTRAC is organized as follows:

- a. Volume I - Introductory, General Information, and Quota/Control Notes; includes general information not subject to frequent changes.

b. Volume II - Course Descriptions and Convening Schedules, includes convening schedules taken from the NITRAS database. These are merged with the course descriptions by course identification number and appear as the last data field of the description, showing course data processing code, location, short title, fiscal year, and dates.

6.3.14.3 The List of Training Manuals and Correspondence Courses (NAVEDTRA 10061-AR) is a catalog of current training manuals and self study courses, for both officer and enlisted personnel, in professional subjects. It is revised and distributed annually to all ships and stations.

6.3.14.4 Index to Directory of Navy Training Devices. The index is prepared by NAVICP and is a listing of training devices, training aids, accessories, and modification kits under inventory control of the Naval Training Equipment Center. All items listed are cross referenced to a multi-volume directory of naval training devices which contains descriptive data of each device.

6.3.15 Manpower Management

6.3.15.1 The Manual of Navy Total Force Manpower Policies and Procedures (OPNAVINST 1000.16) provides information, policies, taskings, and procedures for Navy manpower management. The manual is intended for use by all echelons in dealing with manpower change requests or other manning issues.

6.3.15.2 TFMMS contains manpower requirements and authorization data necessary to support mission objectives which are described in Mission, Function and Tasking, Operational Orders and Required Operational Capabilities/Projected Operation Environment statements. This system is the single authoritative source for manpower data. It tracks officer, enlisted, and civilian manpower resource requirements and authorizations for all Naval activities, ships and squadrons. The AMD is the official source document that displays an activity's manpower requirements and authorization and is based on CNO approved manpower documents (SMD/SQMD)/FMF/SEAOPDETs and by claimants for Shore Statements of Manpower Requirements generated by Efficiency Review Reports.

6.3.15.3 Occupational standards define the tasks required of specified rates or ratings. These standards define the minimum criteria required to function effectively at given levels of responsibility. They also are basic for enlisted training, advancement, distribution, and manpower requirements development. Occupational standards are developed by NAVMAC.

6.3.15.4 DNECs are used to inform commands of which NECs are being distributed and how they are carried against the activity's manpower document.

6.3.16 Navy Training Feedback System (NTFS)

6.3.16.1 NETC manages the NTFS to ensure adequacy of training, accuracy of curriculum, and effective use of instructional resources.

6.3.16.2 NTFS is the Navy's single integrated training feedback system. It applies to all warfare areas and all sources of training. The system is aimed at improving the quality of graduates and effecting improvements based on internal feedback from all naval activities.

6.3.16.3 NTFS resolves training issues at the lowest possible level. Units submit recommendations using a Navy Training Feedback System Form (OPNAV 1500/39). The NETC Training Programs Evaluation Board receives the action copy of this form and facilitates the resolution of the issue. An NTFS database is maintained by the NETC Training Programs Evaluation Board.

6.3.16.4 All aviation training activities conduct training appraisal feedback with their fleet customers to determine the quality and effectiveness of their assigned training courses. When a new or revised course is required, it is developed using OPNAVINST 1540.2.

6.3.16.5 Training Tool Change Management System/OPNAV Aviation Training Management System can also be used by fleet activities and ACC/TYCOM to address training deficiencies and changes. These tools provide another avenue available to address training concerns.

6.3.17 Training Equipment Maintenance Procedures

6.3.17.1 Processing Training Device Components

6.3.17.1.1 Aircraft Components, shall be condemned and considered not suitable for on-aircraft use if they have exceeded their authorized life cycle, have become outdated by changes in aircraft configuration, or if they are considered too costly for repair at an AIMD/MALS or FRC repair facility. A number of these identified components may serve as malfunction repair training aids, undergoing repeated disassembly/repair. Special component identification is required to assure their segregation from on-aircraft components.

6.3.17.1.2 Training device components which, by the nature of their condition, may never again be used on aircraft, will be identified by one of the following permanent methods. Where possible, the words "NOT FOR USE ON AIRCRAFT" will be stenciled prominently upon such components in black letters against a yellow background. If this is not feasible, a permanent tag will be attached to the unit bearing the same legend in the same color scheme. If neither of these permanent systems is practical, a temporary tag bearing the same legend, black words on yellow, will be attached during the repair cycle. This identification system applies to all subassemblies of such components. Technicians and students who disassemble the component will attach the above described temporary tags to each subassembly as they proceed through the maintenance/repair process.

6.3.17.1.3 Some components are interchangeable between weapon system training devices and operational aircraft. These components require no special identification or special handling procedures when inducted for repair. These specific components are maintained by qualified maintenance technicians using standard maintenance repair and induction procedures.

6.3.17.2 Inducting Training Device Components

6.3.17.2.1 Trainer unique components identified as "NOT FOR USE ON AIRCRAFT" will be inducted into the supporting IMA/FRC on a MAF/WO. Mark on each copy the words "NOT FOR USE ON AIRCRAFT".

6.3.17.2.2 Upon completion of the repair or condemnation process of a trainer unique retrograde, at the IMA/FRC the inducted component will be returned to the supported activity or routed for disposition. Associated components or hardware inducted with such components are returned to the supported activity. Replacement of condemned retrograde components identified as aircraft common will be supported under normal aircraft component supply replacement procedures.

6.4 Training, Special Process Certification and Licensing

6.4.1 General

6.4.1.1 Various skills or processes performed at the D-level are not readily verifiable or are of such a critical nature as to preclude the use of normal certification requirements. For these reasons, special certification is required to ensure that artisans performing these processes meet acceptable levels of competence. The Quality Department establishes the local program requirements and determines those operations and processes that require special certification.

6.4.1.2 COMFRC shall ensure a comprehensive special certification/licensing program is developed, implemented, and administered. These requirements will be used as minimum guidelines for the establishment of a special certification program. To that end, the Quality Department is designated as the final approving authority in all areas concerning special certification. Requirements, other than those noted within this chapter, will be established by the Quality Department to ensure compliance with higher level directives.

6.4.1.3 Critical processes performed at FRCs shall be controlled by the special process certification program. The following are examples of special processes mandated by other governing authority:

- a. Welding.
- b. Soldering.
- c. NDT/I.
- d. Sealants, laminating, and bonding adhesives.
- e. Bearing process.

6.4.1.4 One or more of the following situations could mandate implementation of the special process certification program:

- a. Processes that cannot readily be verified.
- b. Process that could jeopardize personal safety.
- c. Process critical to end use or safety of flight/critical safety items.
- d. Processes that require special training.
- e. State-of-the-art technology/operator proficiency requirement.

6.4.1.5 Other operations or functions may be designated for special licensing or certification as necessary. Examples are:

- a. Aircraft turn and taxi.
- b. Test cell.
- c. Safety/survival/egress/explosive systems.
- d. Explosive devices.
- e. W&B.
- f. Purging (fuel).
- g. Spin tower.

6.4.2 Department Responsibilities

6.4.2.1 Quality Organization shall:

- a. Establish local program requirements and determine those processes and functions to be covered under the special process certification and licensing program. Develop and implement procedures to ensure effectiveness of the program.
- b. Ensure all elements necessary for qualifying an individual are established and complied with.
- c. Maintain and provide to management and other departments, as appropriate, records and statistics which indicate effectiveness.

6.4.2.2 Production shall:

- a. Assist in the development and implementation of a comprehensive special process certification and licensing program and provide instructors, facilities, and equipment for training. Additionally, determine skill competency (as appropriate).
- b. Ensure requirements for qualifying or requalifying in the program are met and all supportive documentation, for example, individual qualification records, results of training, medical evaluations, if applicable, written and practical examinations, are provided to the Quality Department prior to the qualification or requalification.
- c. Assist in providing corrective and preventive action in cases of questionable performance. Assist in revocation action when requested by the Quality Department. In each case of revocation, applicable stamps shall be immediately delivered to the Quality Department. When special process or special licensing certificates are revoked they shall be immediately returned to the Quality Department.
- d. Notify Quality Organization of any changes in certifier status, for example, retirement, promotion, transfer (permanent or temporary) or other conditions that would preclude the continuation of special skill certification.
- e. Maintain qualification records and ensure timely renewal of qualifications. Ensure the upkeep and accuracy of training, task and special process certification, licensing requirements, and Individual Qualification Records for artisans assigned to FRC sites are integral parts of the QA support process.

6.4.2.3 Engineering shall:

- a. Provide specification requirements and other technical expertise required for training, examinations, and criteria for development of qualification criteria.
- b. Provide laboratory analysis support, evaluation of practical and written examination, and their respective results. Additionally, determine skill category when appropriate.

6.4.2.4 Administrative Services/Civilian Personnel shall:

- a. Coordinate input for developing training and examination requirements.
- b. Provide for training, instructors, facilities, and examinations.
- c. Retain training records.

6.4.2.5 Occupational Safety and Health Office shall provide medical evaluation and safety determination services.

6.4.2.6 Management controls shall provide information resources support.

6.4.2.7 All departments shall provide assistance in the development and implementation of program requirements per this chapter.

6.4.3 Explosives Handling Personnel Qualification and Certification Program

6.4.3.1 The Quality Organization will monitor the Explosives Handling Personnel Qualification and Certification Program as established in R} OPNAVINST 8023.24/MCO 8023.3.

6.4.3.2 Storing and Handling Uninstalled Egress Systems and Explosive Devices. The storage of removed cartridges, CADs, and PADs must be accomplished per NAVAIR 11-100-1.1-CD.

6.4.3.2.1 Egress/explosive system devices which are not to be installed in the aircraft for a period of time will be stored in a secure area.

6.4.3.2.2 Egress/explosive system devices involved in mishaps will be rendered safe and disposed of by Explosive Ordnance Disposal personnel only. This shall be done only after the mandatory investigation required by OPNAVINST 3750.6.

6.4.3.2.3 Ejection seats and escape system components are structurally and functionally designed for one time use only. Ejection seats/escape system components that have been ejected/fired regardless of apparent condition shall be scrapped per current regulations after release by the Aircraft Mishap Board.

6.4.4 Welding Training Program

6.4.4.1 FRCs shall provide welding training, examinations, and qualification for welders per NAVAIR 01-1A-34 and as identified in the CANTRAC. Welding certification/recertification training is provided by qualified, certified instructors. Examination will be performed by designated personnel.

6.4.4.2 Minimum qualification for a welding instructor to provide training qualification/requalification for welding personnel are:

- a. Must be fully qualified in all elements of the welding trade to include experience as a welder in excess of the minimum required of a journeyman level welder.
- b. Must be certified to perform, and have the ability to meet recertification requirements in all welding processes for which instruction is provided, on all metals specified NAVAIR 01-1A-34.
- c. Must have a thorough knowledge of aircraft and maintenance welding skills and processes.

6.4.4.3 Each FRC shall have a written procedure defining qualification requirements and certification/recertification procedures for establishing welding personnel and welding instructors. This procedure shall be consistent with NAVAIR 01-1A-34.

6.4.5 Aircraft Turnup, Taxi, and Rotor Engagement

6.4.5.1 Aircraft rework is dependent upon various ground checks to determine air worthiness prior to flight. Only qualified employees/military personnel shall be authorized to perform functional checks that require taxi, turnup, or rotor engagement.

6.4.5.2 Employees/military personnel shall be licensed and designated in writing by the CO for engine turnup, taxi, or rotor engagement. Those employees shall be thoroughly familiar with and demonstrate a knowledge and practical proficiency of:

- a. Applicable portions of the NATOPS Manual.

b. Capabilities, limitations, and safety precautions of the system requiring the ground functional check and authorization to perform and certify those tasks.

6.4.5.3 Initial certification and periodic recertification shall require a visual screening, medical examination, written, and practical examinations that include turnaround, start, turnup, shut down, emergency procedures, and, where applicable, rotor engagement.

6.4.5.4 A designated NATOPS pilot/instructor in T/M/S shall develop and administer the practical examination to determine individual proficiency.

6.4.6 Aircraft Releasing Authority

The signature and rate or rank of the flight check officer constitutes aircraft releasing authority, certifying safe for flight conditions. Other personnel may sign the record if authorized and designated in writing by the CO. If aircraft is away from home and qualified maintenance personnel are not available, the pilot in command shall sign the certification in the safe for flight block.

NOTE: COs may authorize pilots-in-command to conduct applicable T/M/S NATOPS pilot inspections, ensuring servicing requirements are accomplished, and sign the Aircraft Inspection and Acceptance Record (OPNAV 4790/141) in the CERTIFICATION block while operating away from home, without qualified maintenance personnel, for periods not exceeding 72 hours. Accomplishing these requirements, rather than completing all daily, turnaround, and fuel sampling requirements, is sufficient for safe for flight certification.

6.4.7 Nondestructive Testing and Inspection (NDT/I) Program

a. Purpose. The purpose of the NDT/I Program is to establish and maintain an NDT/I Program that responds to the needs of naval aviation. The specific objectives of the depot NDT/I Program are to:

(1) Determine serviceability of new and used parts by using NDI techniques to check them for hidden defects.

(2) Provide training.

(3) Provide technical services.

b. Responsibilities. The following duties and responsibilities are defined and assigned.

(1) COMNAVAIRSYSCOM is responsible for managing a program of research, development, training, and application of NDI techniques and equipment.

(a) A program manager shall be designated to provide overall management direction.

(b) NAVAIRINST 13070.1 assigns responsibilities within COMNAVAIRSYSCOM.

(c) Designating an NDI Program coordinator responsible for monitoring, evaluating and standardizing the FRC NDT/I application and training program elements, including scheduling and conducting periodic NDI Program review.

(2) COMFRC is responsible for designating an NDT/I Program Manager within the Naval Engineering Support Office (300 Department) to direct and implement the internal NDT/I Program. The program manager shall:

(a) Act as the point of contact of all external NDI matters.

- (b) Coordinate all NDT/I functions at the depot.
- (c) Develop and disseminate NDI procedures both in-house and to the fleet activities.
- (d) Review all outgoing information regarding the application of NDI procedures.
- (e) Maintain a properly equipped, qualified, and certified group of NDI personnel.
- (f) Provide technical assistance on NDI matters to I-level and O-level activities.
- (g) Coordinate with ACC/TYCOM prior to issuing NDI directives and techniques for fleet implementation.
- (h) Maintain a documented NDI training, qualification, certification, and recertification program for assigned personnel.
- (i) Maintain communication with the COMNAVAIRSYSCOM NDT/I Program Manager.
- (j) Monitor the Fleet Training Program as directed by the COMNAVAIRSYSCOM (AIR-3.4).
- (k) Ensure compliance with all safety regulations, especially those dealing with X ray radiation operating and safety precautions per NAVSEA S0420-AA-RAD-010.

NOTE: RAD 010 takes precedence over radiation safety procedures contained in NAVAIR 01-1A-16.

(3) Written procedures for NDI directives for fleet implementation shall be explicit and verified by the ACC/TYCOM. When references are used they shall be those normally available to the maintenance level involved. Whenever possible, equipment and material required shall be those listed in NAEC-MISC 52-0385. When this is not practical, the ISSC will identify required equipment and materials, for example, transducers, wedges, fixtures, probes, standards, and provide such items to fleet activities concurrently with inspection directives. If the directed inspection is of a continuing or repetitive nature, a support equipment recommendation data form shall be submitted by the originating ISSC per AR-21. Each NDI directive shall indicate an NDI point of contact.

NOTE: When deemed necessary by the ISSC NDI Program Manager, TDs requiring complex NDI inspection techniques or where the area of interest and nonrelevant indications may be misinterpreted shall be supplemented by drawings, photographs, or video tape for clarity. This supplemental material must be dated, serialized, and controlled by the CTPL as part of the TD.

(4) FRCs shall ensure the focus of the NDI Program is to provide a quality product not to be compromised by production expediency.

6.4.7.1 Fleet Training Program

6.4.7.1.1 FRCs shall provide NDI training examination and qualification per NAVAIRINST 1500.2 and as identified in the CANTRAC (NAVEDTRA 10500).

6.4.7.1.2 COMNAVAIRSYSCOM shall:

- a. Provide COMFRC with current, complete training courses.
- b. Monitor and update the CANTRAC.

c. Coordinate training requests for military and civilian NDI personnel with the cognizant FRC. Quota control authority for military personnel is normally delegated to the FRC that teaches the course. A requesting activity, in receipt of ACC/TYCOM approval to obtain a course quota, will normally contact that FRC directly. In emergency situations where course quota conflicts cannot be resolved between the requestor's chain of command and the FRC, COMNAVAIRSYSCOM (AIR-6.7) will be contacted to arbitrate a solution.

6.4.7.1.3 FRCs shall:

- a. Provide NDI operator training.
- b. Provide NDI Technician recertification training.
- c. Submit proposed NDI course changes.
- d. Administer standardized practical and written examinations to fleet personnel. One retake of the examination will be permitted. Repeated failure will be reported to the individual's CO and TYCOM for appropriate action.

6.4.7.2 Commander, Fleet Readiness Center (COMFRC) Internal Training and Certification Program

6.4.7.2.1 Minimum qualifications for an instructor to provide training qualification or requalification for NDI personnel is:

- a. Two years experience as an industrial NDI inspector Level II (or equivalent) working in the methods being taught.
- b. A thorough understanding of the applications and limitations of all five basic NDI methods.
- c. NDI instructor certification per local directives.
- d. For classroom instruction the individual must be a graduate of instructor training school.

6.4.7.2.2 FRCs shall ensure all candidates for the Navy NDI school at NATTC Pensacola, FL are thoroughly screened and capable of meeting the equivalent requirements as set forth in the CANTRAC. Special attention shall be given to English comprehension and mathematical abilities.

6.4.7.2.3 Each FRC shall have a written directive defining qualification requirements and certification procedures for establishing NDI personnel as levels I, II, III, and instructor. This procedure shall be consistent with the framework of NAS 410.

6.4.8 Egress/Explosive System Checkout Program

Due to inherent dangers associated with egress/explosive systems, an egress system checkout procedure is required. The command shall ensure egress/explosive system checkout and familiarization training for all personnel involved in maintenance/repair on aircraft upon reporting aboard and every 6 months thereafter prior to the last day of the requalification month per [Chapter 10](#), paragraph 10.15. Any personnel removed from aircraft maintenance responsibilities for 90 days or longer will receive an egress system checkout before performing any aircraft maintenance.

6.4.9 Aviation Life Support Systems (ALSS)

6.4.9.1 The ALSS Program establishes the policy and requirements for determining acceptable civilian personnel certification qualifications for maintaining personnel parachute assemblies, ejection seat drogues, and related egress equipment.

6.4.9.1.1 Only qualified, certified personnel shall be permitted to pack, repair, or inspect personnel parachutes, drogue chutes (excluding drogue chutes with nonremovable head boxes), inflatable survival equipment, and assemble seat survival kits. Personnel must be graduates of either approved D-level training, parachute rigger school, manufacturer, or FASOTRAGRU/CENNAVAVNTECHTRAU for specific T/M/S ALSS assemblies. FRCs must submit their training plans to a COMNAVAIRSYSCOM (PMA-202) approved neutral source for review/approval every 2 years.

6.4.9.1.1.1 Initial examination, certification requires completion of local classroom instruction, OJT, and a written and a practical examination.

6.4.9.1.1.2 Recertification is required annually and will be accomplished through a written and a practical examination.

6.4.9.1.2 Only qualified, certified personnel shall be permitted to maintain, service or inspect egress systems. Personnel must be graduates of approved D-level training, AME school, manufacturer, or FASOTRAGRU/CENNAVAVNTECHTRAU for specific T/M/S egress systems. COMFRCs must submit their training plans to a COMNAVAIRSYSCOM (PMA-202) approved neutral source for review/approval every 2 years.

6.4.9.1.2.1 Initial certification will require completion of local classroom and OJT and a written and a practical examination.

6.4.9.1.2.2 Recertification is required annually and will be accomplished through a written and a practical examination.

6.4.9.1.2.3 Personal Flight Crew ALSS Equipment Maintenance. COMFRCs will establish procedures for maintenance per applicable directives.

6.4.10 Aircraft Confined Space Program

6.4.10.1 An Aircraft Confined Space Program will be established per NAVAIR 01-1A-35.

6.4.10.2 COMNAVAIRSYSCOM manages the Aircraft Confined Space Program per NAVAIR 01-1A-35. NAVAIR 01-1A-35 implements aviation requirements and shall be used as the governing document for all Aircraft Confined Space Program procedures, ashore and afloat. EA certification requirements are identified in NAVAIR 01-1A-35.

6.4.11 Aircraft Battle Damage Repair (ABDR) Trained Engineers

6.4.11.1 The engineer is the key to effecting difficult repairs and making one time flight or helicopter lift decisions. D-level ABDR engineers will provide direct support for ship and shore-based operational units and in-theater D-level facilities and will assist the fleet with information and guidance for major decisions.

6.4.11.2 ABDR Assessors. Only the most qualified and experienced maintenance personnel will be selected and trained as ABDR assessors. The assessor will be a qualified depot planner and estimator designated as an ABDR inspector. They shall be capable of performing the following functions:

- a. Evaluate the extent of battle damage.
- b. Coordinate engineering assistance as required.
- c. Estimate the time required for full or partial repair.
- d. Determine the capability to effect repairs with available personnel, support equipment, and facilities.
- e. Specify repairs to be accomplished or deferred.

6.4.11.3 ABDR Technicians. ABDR technicians can perform repairs to aircraft or components requiring the use of ABDR procedures.

6.4.11.4 Training Policy. The ABDR concept of temporary and partial repair of aircraft represents a departure from current aircraft maintenance and repair philosophy. Maintenance and aircrew personnel must be educated with respect to acceptable levels of damage and standards of repair allowed under the ABDR concept.

670	
A-1A PHASE PACKAGE	
760A	SN4
ME-11	SN6
ME-11	SN14
ME-11	SN22
A-2 PHASE PACKAGE	
355C	SN2
355D	SN6
S01-652A	SN173
TS-505	SN10
TS-505	SN13
USM-116	SN3
USM-116	SN10

Figure 6-1: PME Work Center VIDS Board



DISCREPANCY										COMPLY WITH NAVAIR 13-1-6.2 REQUIREMENTS									
SER NOS:		187563		(AC6142021)		26804		(AC6142025)											
		12117		(AC6142022)		49341		(AC6142026)											
		52985		(AC6142023)		2218		(AC6142027)		PILOT/INITIATOR									
		865403		(AC6142024)		54602		(AC6142028)											
CORRECTIVE ACTION																			
															CF REQ		QA REQ		
															<input type="checkbox"/>		<input type="checkbox"/>		
															RFI		BCM		
CORRECTED BY					INSPECTED BY					SUPERVISOR PR1 Hammett					MAINT CONTROL				
 		MODEX	PRI	TURN-IN DOCUMENT					SYSTEM/REASON					MCN					

Figure 6-2: Discrepancy/Corrective Action Block

COMNAVAIRFORINST 4790.2A
15 Feb 2008

SE REWORK SCHEDULE REQUEST

OPNAVINST 4790.2E

FROM		TO	
C/N	DEPOT ASSIGNED	AAI	TR SER NO.
NIIN	CAGE	PART NUMBER	
NOMENCLATURE	BCM CODE	REPAIR	OVERHAUL
EQUIPMENT DISCREPANCIES (REPAIRS ONLY)			
NIIN	CAGE	PART NUMBER	
ATTACH COPY TO EACH ITEM OF SE INDUCTED FOR OVERHAUL/REPAIR			
CERTIFYING SIGNATURE		RANK/GRADE	

OPNAV 4790/80 (REV. 10-92)

S/N 0107-LF-014-9700

Figure 6-3: SE Rework Schedule Request (OPNAV 4790/80)

[illegible]

Figure 6-4: Work Unit Code VIDS Board Layout

[illegible]

Figure 6-5: Engine VIDS Board

WORK CENTER 610					
WUC	P/N	LRCA #	AWM	IN WORK	AWP
71430					
71431	1091295	110			
71432	54400428	145			
71480					
71481	522-2537-00	65			
71482	525-3667-00	170			
72360					
72361	1268-2904	160			
72362	3161522	205			
73510					
73511	6707420002	125			
73512	6709017003	270			

Figure 6-6: IMA/FRC Work Center 610 VIDS Board

WORK CENTER 630																								
RATE	NAME	IN WORK										QUALIFICATIONS												
ATC	Q.R. JONES																							
AT1	S.T. GRAY																							
AT2	U.V. BROWN																							
AT3	W.X. SMITH																							
AT3	Y.Z. GREEN																							
ATAN	A.B. WHITE																							
ATAN	C.D JONES																							
WUC	P/N	LRCA#	AWM										AWP											
74240																								
74241	616R424001	155																						
74242	615R584001	85																						
74243	614R379G01	180																						
77110																								
77111	474100-1	360																						
77112	474200-3	315																						
77113	474150-3	130																						

Figure 6-7: IMA/FRC Work Center 630 VIDS Board

WORK CENTER 9XX			
A	B	C	D
EQUIP	IN WORK	AWM	AWP
AIR COND			
GEN			

BOARD LAYOUT

A EQUIP - Pockets are labeled alphabetically with each type equipment processed by that work center.

B IN WORK - Used to display VIDS/MAFs for equipment/components that are currently being processed.

C AWM - Used to display VIDS/MAFs for equipment/components that are in a backlog or pending status.

D AWP - Used to display VIDS/MAFs for equipment/components that are in an awaiting parts status.

Figure 6-8: SE Work Center VIDS Board

<p>WARNING: Unauthorized persons removing, defacing, or destroying this tag may be subject to a fine of not more than \$1,000 or imprisonment for not more than one year or both. (18 USC 1361)</p>	FSN, PART NO. AND ITEM DESCRIPTION		SERVICEABLE TAG - MATERIEL	
	7RH 1560-00-123-4567PF 215-04123-1 VALVE		NEXT INSPECTION DUE OVERAGE DATE	CONDITION CODE A
			INSPECTION ACTIVITY NAS PATUXENT RIVER, MD	
	SERIAL NUMBER/LOT NUMBER 0123	UNIT OF ISSUE EA	INSPECTOR'S NAME OR STAMP AND DATE SSGT GOTT 96285	
	CONTRACT OR PURCHASE ORDER NO.	QUANTITY 1		
	REMARKS AFWA WA5-123-456			

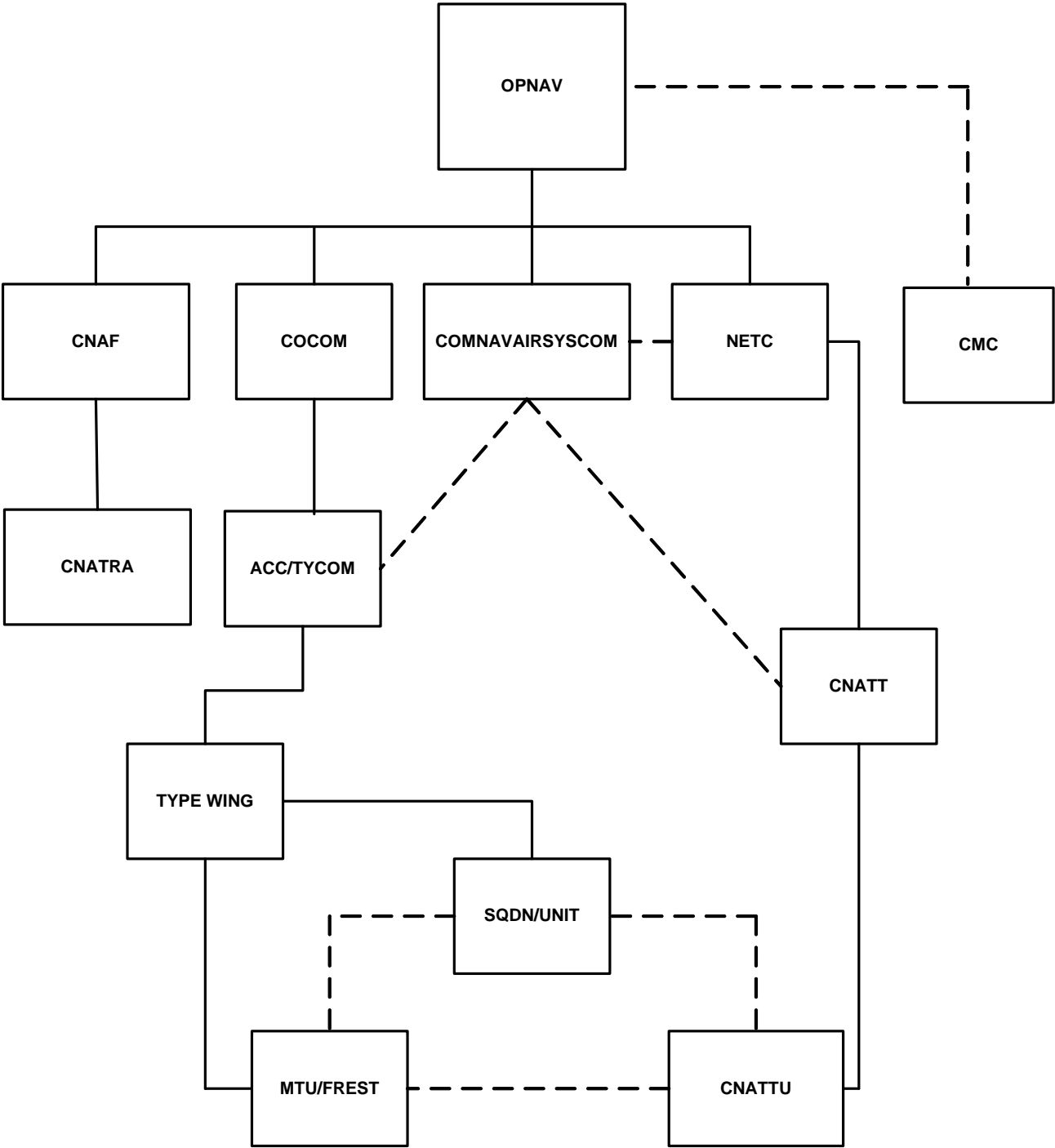
Previous edition may be used
DD Form 1574, OCT 88
S/N 0102-LF-014-5600

Figure 6-9: Serviceable Tag - Materiel (DD Form 1574)

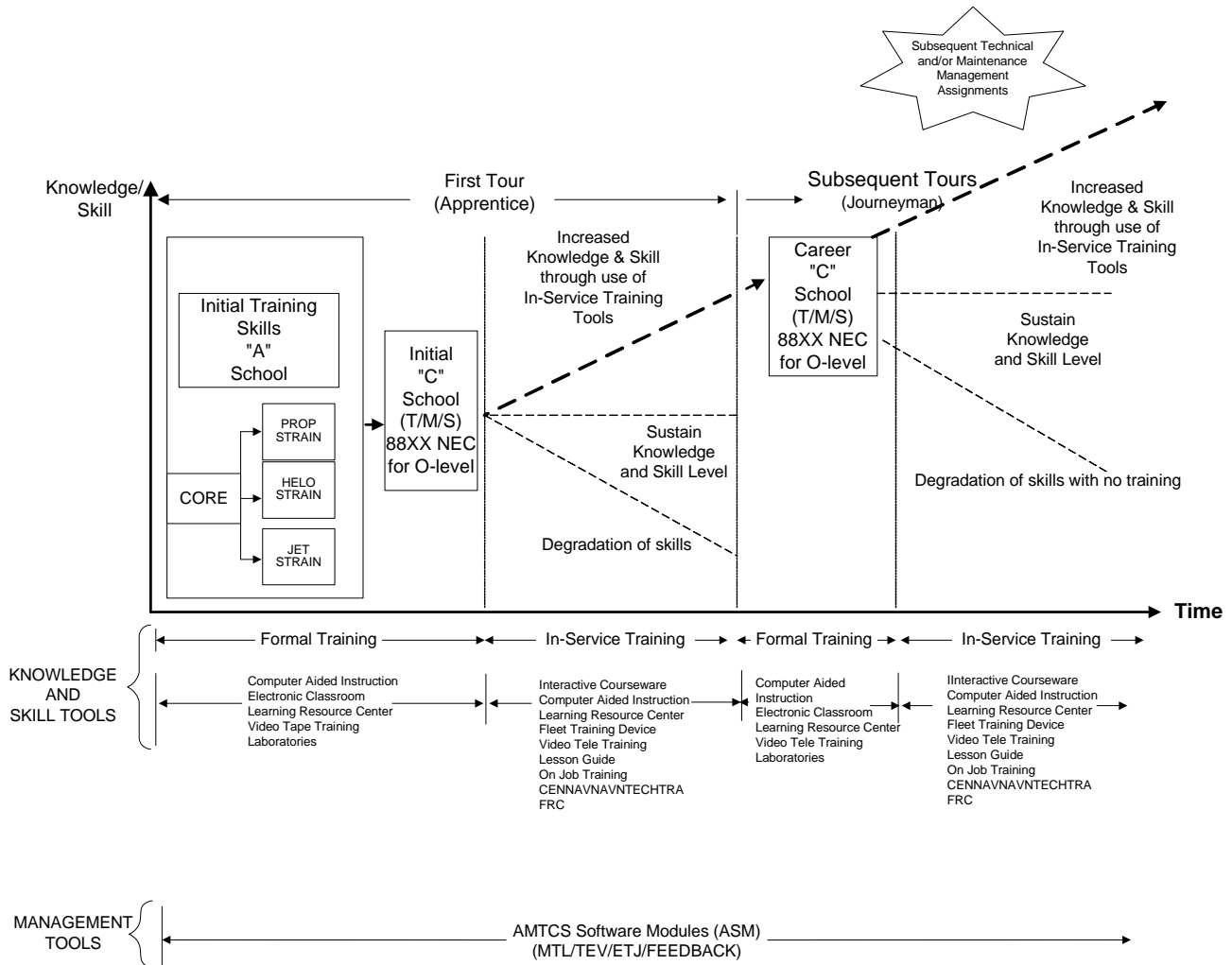
<p>WARNING: Unauthorized persons removing, defacing, or destroying this tag may be subject to a fine of not more than \$1,000 or imprisonment for not more than one year or both. (18 USC 1361)</p>	FSN, PART NO. AND ITEM DESCRIPTION		UNSERVICEABLE (REPARABLE) TAG-MATERIEL		
	7RH 1560-00-123-4567PF 215-04123-1 VALVE		INSPECTION ACTIVITY A9B	CONDITION CODE F	
			REASON FOR REPARABLE CONDITION BCM-1		
			REMOVED FROM		
	SERIAL NO/LOT NO 0123	UNIT OF ISSUE EA	INSPECTOR'S NAME OR STAMP AND DATE SSGT GOTT 96285		
	CONTRACT OR PURCHASE ORDER NO.	QUANTITY 1	REMARKS AFWA WA5-123-456		

DD Form 1577-2 1 Oct 88 SN 0102-LF-016-0000

Figure 6-10: Unserviceable (Reparable) Tag - Materiel (DD Form 1577-2)



R} Figure 6-11: Command Relationships



R} Figure 6-12: Aviation Maintenance Training Continuum System